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ABSTRACT

The Uplifting Skills program attempted to improve the reading achievement of pupils through the diagnosis and remediation of perceptual problems and the creation of reading centers. The Elementary School Education Assistants program served 37 classes in grades 3-6 in all of the elementary schools in District 1. The educational assistants worked under the direction of the regular classroom teacher in the areas of classroom management and routines. The Diagnosing Reading Difficulties program was designed to help prevent reading failures in grades 1 and 2 by training teachers to identify reading difficulties of their students and to help the teachers plan a program of remedial instruction. Project Read was an individualized, self-pacing reading program designed to increase the interest and reading abilities of selected pupils in P.S. 140. The Supportive Training for Inexperienced and New Teachers consisted of 10 master teachers. Each supervised 8--10 new teachers. The goal of the Mathematics Laboratory Project was to identify third, fourth, and fifth grade children who were lowachievers in mathematics, and through the use of small group and individualized instruction to: (1) increase motivation to learn mathematics, (2) improve computational skills, and (3) assist teachers in using new materials and techniques. (Author/JM)

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COMMUNITY SCHOOL DISTRICT NO. 1
1972 - 1973 STATE URBAN EDUCATION PROGRAMS

Board of Education of the
City of New York

FINAL REPORT

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FINAL REPORT
AN EVALUATION OF THE STATE URBAN EDUCATION PROGRAMS
COMMUNITY SCHOOL DISTRICT I
NEW YORK CITY BOARD OF EDUCATION

Uplifting Skills Center
Elementary School Educational Assistants
Diagnosing Reading Difficulties
Project Read
Supportive Training for Inexperienced and New Teachers
Mathematics Laboratory

An evaluation of a New York City school district educational project funded by the "New York State Urban Education Program" enacted at the 1969 Legislative session of the New York State Legislature for the purpose of "meeting special educational needs associated with poverty." (Chapter 685, Section 9, subdivision 11, law of 1969.) Performed under contract with the Board of Education of the City of New York for the 1972-73 school year.

Teaching & Learning Research Corp.
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UPLIFTING SKILLS CENTER

EXECUTIVE SUMMARY

The Uplifting Skills Program represents an attempt to improve the reading achievement of pupils through the diagnosis and remediation of perceptual problems and the creation of reading centers. A pre-kindergarden program, designed to provide appropriate readiness activities, was also part of the program.

The objectives of the program were as follows:

1. To provide diagnostic testing for pupils in grades K-2 to identify perceptual problems in reading and plan appropriate programs of remediation.
2. To improve the reading achievement of all diagnosed pupils so that significant growth is attained.
3. To develop increased vocabulary and comprehension skills on the part of pre-kindergarden students.
4. To increase the ability of pre-kindergarden students to complete educational tasks and work independently.
5. To increase the involvement of parents in school activities.
6. To improve the reading performance of students participating in the reading centers by 7 equivalent units.
7. To develop more positive attitudes toward reading.
8. To help teachers set up reading skill centers in their own classrooms.

The analysis of the measures employed to test the success of each of the above goals led to the following results.

1. Significant growth was recorded for children participating in the perceptual program on the Search Battery and on the WRAT Oral Reading Test.
2. Children in the pre-kindergarden program showed significant growth in reading skills as measured by a modified version of the Pre-Kindergarden Reading Assessment Test.
3. Pre-kindergarden students achieved significant gains in their ability to complete educational tasks and work independently.
4. The goal set for increased parental participation in school activities was met.
5. Children participating in the reading centers did not achieve a growth of .7 equivalent units as measured by the California Achievement Test in reading.

6. There was not a significant improvement in the attitude of students toward reading.

7. Teachers were able to set up reading skill centers in their own classrooms.

On the basis of direct observation of the program as well as the results of the data mentioned above, the following recommendations were made:

1. That the role of classroom teacher in regard to the Reading Centers be more clearly defined and a program instituted to train them to meet these defined responsibilities.

2. That Reading Center personnel give more thought to making changes in the way classes are scheduled to visit, such as increased small group instruction.

3. That the role of the Project Coordinator be more closely defined, i.e. functions specified, relation to centers and classroom teachers clearly, rather than generally, spelled out.

4. That the activities of the Perceptual Unit be accompanied by a training program for teachers in diagnosis and remediation of perceptual problems so that the direct influence of the program is not limited to so few students.

5. That decisions be made about the major focus of the perceptual program in regard to whether its short term purpose is the elimination of perceptual difficulties or the improvement of reading. If the latter goal is chosen, then the success of the program should be measured by growth on a standardized reading achievement test.

6. That building administrators become more familiar with the program in order to oversee it properly and encourage the appropriate involvement of teachers.

7. That measures of program success, whenever possible, be stated in terms of pupil achievement and fewer indirect measures proposed.

Uplifting Skills Center

BACKGROUND

The proposal for a skills center was made by representatives of a former project that was conducted in District One, located on the Lower East Side of Manhattan. The planning was done in conjunction with the Community Superintendent, members of the earlier District One project, the Principals' Advisory Council and the District Parent Advisory Council on Funded Programs. According to the program proposal, the planners were attempting to meet a series of needs in District One that center around reading deficiencies. In the program description, these needs were listed in three separate categories: Perceptual training, Pre-Kindergarten Assessment and a Reading Skills Center.

The program provides for the retention of three aspects of the former Experimental Elementary Program(EEP) which district planners felt had proven to be successful in a former EEP school, P.S. 110 M. Two Pre-Kindergarten Units, already functioning in P.S. 110 were to continue operating in an attempt to provide the kinds of initial educational experiences in listening, speaking, perceptual and cognitive skills that would give the three and four year old students in those classes the positive beginning in school that is so necessary for success. To accomplish this, funding was to be provided for two teachers, two educational assistants and one family assistant who would staff the program. Their task was to jointly organize and run a program that would "meet the needs of this age group to develop the ability to use language functionally, to improve parent involvement in school experience, and to provide a positive educational environment." The pre-K-3 and pre-K-4 units dealt with three and four year old children respectively and were staffed by experienced personnel. This part of the program was located solely in P.S. 110.

That portion of the program dealing with developing reading skills centers was to be located in three different schools. The main center and the initial model for the program was located in P.S. 110 where it had been operated in the past as part of the EEP program. Thus the personnel at this center were experienced and indeed the former instructor in this reading center had become the Project Coordinator of the new program. In addition to P.S. 110, two other schools (P.S. 15 and P.S. 188) were to develop reading skill centers during the 1972-73 school year that were based on the model provided by P.S. 110. The intent was to use the teaching skill and experience developed under the EEP program to service the needs of pupils in grades 4-6 in the three schools. Thus a complex of three schools was to be developed with P.S. 110 serving as the model and consultant center for all interested schools in the district.

The Perceptual Skills Center was also to be located in P.S. 110. This unit comprised one teacher and one teacher aide. The function of the teacher assigned was to identify children with perceptual difficulties that might interfere with their studies and precribe a program of work that would remediate their problems. This aspect of the program was based upon the work of Hagin and Silver of the New York University Medical School. Ancillary services were provided for the Perceptual Unit by the N.Y.U. group, mainly in the form of consultant services. The consultants aided in the diagnosis and development of programs for remediation of the students. They also conducted a workshop for teachers that was designed to explain the intent of the program as well as help teachers improve their own skills in the diagnosis and treatment of perceptual problems.

The program thus far described was developed for the district because the planners felt that additional assistance, particularly in the area of reading, was necessary in the light of what appeared to be a decline in reading achievement as measured by MAT results. District One consists of 16 elementary and 4 junior high schools. All the schools in the district are classified as eligible for Title I since of a total of over 18,000 pupils, 13,000 come from homes in the low income level. In the proposal, it is indicated that most of the students are two or more years below national norms in reading, math and basic skills as measured by standardized tests. In addition, over 65% of the pupils scored below the 4th level on the state Pupil Evaluation Program (PEP) tests in reading or below the minimum language competence. The ethnic composition of the district is 70% Puerto Rican, 15% Black, 5% Oriental, and 10% white, with many students being non-English speaking.

The children who participated in the reading skills aspect of the project were selected on the basis of the results of standardized test scores such as the Metropolitan and California Achievement Tests. Selection of participants for the Perceptual Unit was based on the results of diagnostic tests given to kindergarten children in June of 1972. Selection of students from other grades was done on the basis of teacher referrals. Pupils for the pre-K-3 and pre-K-4 classes were to be selected from those "most educationally deprived since research has established that children from low-income homes come to school without the necessary basic skills and environment for learning."

PROGRAM DESCRIPTION

As has been indicated, the Uplifting Skills Project consisted of three separate segments nominally under the supervision and control of the Project Coordinator. In actual practice, the three units conducted their portions of the program independently. This was to be expected and did not appear to detract from the overall functioning of the program. The pre-school component for the vast majority of its day-to-day operation was a distinct and separate entity. The Perceptual Unit had been part of a broader, experimental district program in the past and continued its natural affiliation with members of the Hagin and Silver team who had provided the original theoretical foundation and were continuing their work elsewhere in the district.

The Reading Skills Center at P.S. 110 had essentially been established already as part of the EEP program. Unlike P.S. 188 and P.S. 15, the material for the center had long ago been ordered and was not only available but in use as of last year. Thus this part of the reading skills program was effectively organized and operating in September as planned. The intent of the proposal was to use the experience of the personnel from the Reading Skill Center at P.S. 110 to direct and guide the development of the centers at the other two schools. The guidance would take the form of help in the ordering of appropriate materials for use by teachers and students, advisement about the structure and basic operation of the daily program and aid in supervision as well as instruction. The program in each of the three schools, once organized, was to run on a five day a week basis. A regular schedule of classes from grades 4 through 6 would visit the center for special instruction in various reading skills. Much of the program was intended to be self-instructional in nature, with students being diagnosed and then provided with the appropriate materials at their own level that would remediate the indicated area of weakness.

Beyond the preparation of the actual classroom environment (i.e. the selection of the materials and the physical organization of the classroom) the staff of the skills centers would provide instruction on an individual and small group basis and maintain accurate and up to date records of each individual student's progress. The classroom teacher was expected to remain with her class when it visited the center and aid in the instruction under the supervision of the reading skills teacher. In the proposal,the planners indicated the hope that the centers would serve to both train and encourage teachers from other schools in the district to set up similar skills centers in their own schools.

It is clear that the proposal writers view the Project Coordinator as a central figure in the development of the reading skills centers. Though the overall administration and supervision of the entire Uplifting Skills project is under the guidance of the principal of P.S. 110, functionally, the Project Coordinator was in charge of all key aspects of the program, particularly as regards the reading centers. As the proposal states, "She will be primarily responsible for carrying out the diagnostic testing procedures of the reading needs of pupils in grades 4-6. She will assist the teachers in meeting the individual needs of their students in reading. She will conduct reading laboratory classes and provide small group instruction for grades 4-6." In addition, she was expected to be the trainer for the teachers and educational assistants in the use of various reading techniques and would serve as a resource person for schools needing these services.

In order to accomplish her role as teacher trainer, the project coordinator was to devise a flexible schedule within the regular school hours to "meet each teacher in the program, provide for demonstration lessons and intervisitations, conduct workshops and conferences, introduce new materials and concepts in the teaching of reading and assist the teacher and eduational assistant in planning instructional materials and techniques." The role thus involved direct supervision of 6 people, training of new or interested personnel, and direct responsibility for the complete establishment of two new reading centers. This was in addition to overall responsibility for the rest of the Uplifing Skills Program. Thus, the demand upon the project coordinator's time, even at the planning stage, was immense. It is true that that individual had prior experience both as a teacher trainer and as a reading skills center teacher but still a great deal of responsibility for the conduct (and possible success of the program) was placed on one individual.

The plan for the Perceptual Training Unit called for one experienced teacher trained in the diagnosis and remediation of perceptual problems. While this individual was expected to service mainly the pupils in grades K-2 in P.S. 110, the proposal also indicated that a portion of her time would be spent in training other teachers in the appropriate diagnostic procedures in those schools lacking and needing such a service. Within the confines of the program at P.S. 110, the perceptual training teacher was to assume responsibility for "providing diagnostic screening services to detect perceptual difficulties; coordinating a training program to meet the individual needs of these children; and to act as a teacher trainer and consultant to other teachers in techniques to meet the diagnosed needs of pupils with milder perceptual difficulties." This portion of the program was conducted exclusively at P.S. 110 and the expectation was that it would service approximately 100 pupils.

The general philosophy of the perceptual program itself is probably best described in the words of Hagin and Silver upon whose work the entire program was based: "Basing our work on the hypothesis that increased accuracy of perception will be reflected in improved reading achievement, we are engaged in a four-year study to devise methods for the stimulation of deficit perceptual areas in children with reading disability and to subject these methods to controlled evaluation. . . . We postulated that a total remedial program would include teaching at three levels: (1) An accuracy level to develop accuracy of perception within a given modality. (2) An intermodal level to relate two or more perceptual modalities. (3) A verbal level to insure the transfer of perceptual abilities to language skills. . . The training techniques used in this experiment are directed only toward improvement of the accuracy of perception of visual, auditory, tactile, and kinesthetic stimuli and the awareness of body orientation in space through single channel input. . . The results so far suggest that where perceptual defects are first trained out, reading instruction at intermodal and verbal levels will have a better chance of success. This is particularly true of the more severe language disabilities, those with defects in multiple modalities and those in whom 'soft' neurological signs may be found."

The pre-kindergarten program which was also housed in P.S. 110, was essentially a program in early childhood education designed to counter the effects of possible educational deprivation in children from low-income families. This group was composed of two separate classrooms, one for three year olds and one for four year olds, with each class staffed by a teacher and an educational aide. The intent was to provide the type of readiness activities that would allow the pupils to function on grade level when they reached mandatory school age.

The proposal states that "the staff will provide training and opportunities for intellectual growth through development of listening-speaking skills, and first hand experimentation with instructional materials. They will also help to improve the social and emotional development of the children through the attainment of positive images and a sound attitude toward learning. They will improve perceptual-motor coordination and development and skills required in cognitive areas." Individualization was stressed in order to meet the needs of the pupils and increased parent involvement was to be promoted. In addition to the classroom staff, a family assistant attached to both classes was provided to promote better home-school cooperation as well as to increase the interest and participation of parents in the school-related activities of their children. The proposal also stipulates that whenever possible, bilingual paraprofessionals should be called upon to strengthen the instructional program by assisting bilingual children in mastering basic language skills and overcoming learning difficulties. The two pre-kindergarten grades serviced about sixty children, each class conducting a morning and afternoon program with approximately fiften students in each section. The program provided additional instructional materials beyond those normally available in the classroom at P.S. 110 and the school was expected to offer "all other supportive services normally provided other children not in reimbursable programs."

EVALUATION DESIGN

The program of evaluation for the project was drawn up by the district staff in consultation with members of the Teaching & Learning Research Corporation. The evaluation program that evolved was designed to measure the effectiveness of nine different aspects of the overall Uplifting Skills Project that had been specifically stated as major objectives in the proposal outline.

The first two objectives were those set forth for the Perceptual Training Unit. In order to assess whether all diagnosed pupils evidenced a significant increase in reading achievement during the year, a pre and post test was to be administered. After consultation with the staff of the Perceptual Unit, it was agreed that the WRAT and Search Battery would be used for this purpose. The pre and post test results on both of these instruments were compared through the use of a correlated t test. The .05 confidence level was to determine significance.

The second evaluation item called for an assessment of the results of training classroom teachers in the diagnosis and remediation of perceptual problems. The proposal had called for the teacher in the Perceptual Unit to give demonstrations, run workshops or in other ways "train inexperienced teachers to conduct diagnostic testing and institute remedial procedures to the extent that 75% of the teachers (so trained) will rate the program as benefiting their regular classroom instruction." After initial conversations with the Perceptual training teacher, it was clearly unlikely that such an objective could be attained. That individual was responsible for direct remediation work with 30 pupils, each of whom was seen on an average of two to three times a week. There was also responsibility for diagnostic work with over 100 students. It was apparent that unless one were to change the job description or the assigned responsibility, that there would be little opportunity for work with teachers in other schools. There was a clear conflict between the instructor's teaching and resource roles.

As an intermediate alternative, a consultant from the Hagin and Silver program was asked and agreed to conduct workshops for teachers on a weekly basis at P.S. 110. After consultation with the Project Coordinator and the teacher, it was determined that this goal could not be met. At their request, the evaluation unit of the State Education Department was asked to agree to the deletion of this particular item and permission was granted. Poor teacher attendance resulted in the discontinuation of the workshop after several weeks.

The next three evaluation items pertained to the pre-kindergarten component. The goals, briefly stated were: "to provide selected . . . children with the basic skills and learning environment necessary to narrow the gap between their achievement and that of their more advantaged peers; to develop positive work attitudes to the extent that 80% of the students will be able to complete the assigned educational tasks and work independently; to improve parent involvement . . . in the school experience."

To measure the achievement of the first of these stated goals, it is indicated in the proposal that increased vocabulary and comprehension skills be developed" to the extent that 50% of the pre-kindergarten students will attain scores above the 50th percentile on the New York City Pre-Reading Assessment Test."This goal later appeared to the evaluator to be exceedingly impractical. The particular test mentioned is designed for five and six-year olds and assumes certain levels of maturity or specific sets of skills. It is rather unlikely that most three or four year olds would have reached such maturity or attained those skills. It is even more unlikely that they can compete with children two years older and score better than 50% of them. The test would almost certainly seem to be inappropriate.

As a result, it was suggested in the Interim Report that a modified version of this test be used in its place. The alternate form suggested was not as lengthy, did not make the same demands of a child's level of skills and hopefully, provided a clearer and simpler format. Both the teacher and Project Coordinator were in full agreement with the suggested change. The State Evaluation Unit concurred with the requested substitution and the modified pre-kindergarten assessment instrument (see Appendix B) was then administered to each child in the pre-k-3 and pre-k-4 class on a pre and post basis. The results were compared using a correlated t test to determine if statistically significant growth had taken place.

The second evaluation item for the pre-k units involved an assessment of the children's growth in their capacity to complete specific educational tasks independently. The two pre-k teachers, using authoritative sources, drew up a schedule of educational tasks that were suitable for the children in their respective classes. The evaluation design called for the teachers to rate the success of their students in completing these tasks at the termination of the program. The number of students who could work independently and complete more than 50% of the tasks were counted. This proportion was statistically compared to a predetermined success level of 80% by a test of proportions.

In order to attain a first hand knowledge of the results of this testing, the evaluator arranged to visit each of the pre-k classes at the end of the term. During these visits, a number of students were randomly selected and the teacher had them attempt to complete certain tasks selected from the scheduled list of activities to be used for evaluation. In this way it was hoped that rater bias could be eliminated and additional data collected that could be compared to the results of the total sample.

The third and last evaluation item for the pre-k unit was to assess whether 50% of the parents of the children in the classes were involved in school activities during the year. To measure this, the records of school related activities were examined at the end of the year. The names of participating parents were checked against the names of parents of the pre-k-3 and pre-k-4 students. The proportion of parents participating was then statistically compared with the 50% criterion by a test of proportions.

The last four items of the evaluation design pertain to the reading centers at the three schools. While the goals of the reading center were multiple in nature, the primary goal appeared to be both clearly stated and measurable: "To improve reading performance in grades 4-6 by an average of .7 grade equivalent units." This was to include not only the progress of the students in the model center at P.S. 110 but those students participating in the newer programs at P.S. 15 and P.S. 188 as well.

The California Achievement Test was to measure pupil progress in reading. The test was given on a pre and post basis and the average gain of the participants compared to the expected .7 grade equivalent units by use of a correlated t ratio, tested for significance by a one-tailed test at the .05 confidence level.

A second evaluation item was to assess whether 50% of the students had developed a more positive attitude toward reading after having been in the program for a year. In order to measure pupil attitudes toward reading, a ten item forced choice reading inventory scale was developed by Teaching & Learning Research Corporation. The scale was administered to a randomly selected sample of students at each of the three schools on a pre and post basis. The percentage of students who attained more positive attitude scores was then compared using the actual obtained proportion versus the expected proportion in a chi-square analysis.

An evaluation was also to be made of the impact of the reading centers on other teachers in the building. The stated goal in the proposal was "to aid teachers in developing reading skills centers to the extent that 60% of the teachers who consult the centers at P.S. 15 and P.S. 188 will rate the program as successful in helping them set up their own program." To assess this, the names of teachers who participated in the program were collected from the center's records. These teachers had been asked to respond to a series of questions evaluating the effectiveness of the center in regard to aiding their students as well as helping them set up skill centers in their own classrooms. The number and proportion of teachers responding positively to items regarding the assistance they received was then statistically analyzed using a chi-square test with the expected favorable proportion being 60 percent.

The last evaluation item for the skills centers dealt with an assessment of the use of the school library. In the original proposal, the intention of increasing the student use of the library by 50% over last year's use was stated as a specific goal. In an attempt to assess the achievement of this goal, it was proposed that the use of the library in the last one hundred days of the 1971-72 school year be compared to its use in the last one hundred days of the 1972-73 school year to see if a 50% increase had taken place. An alternative procedure was also suggested in which it would be determined if a 50% increase in the circulation of library books had taken place this year over last.

It was evident early in the year that this part of the program proposal was going to be virtually impossible to measure. The library records for the previous year were totally inadequate to the task both in regard to student use and the circulation of books. In addition, the value of such a measure in regard to what it could add to the program evaluation was called into question. As a result, a request was made of the State Evaluation Unit that this item also be deleted. The request indicated that the "Assessment of library use is felt to be too behaviorally remote and susceptible to contamination from prior year program impact to validly measure (the) current year's program impact. It is therefore deleted." The State Evaluation Unit complied with this request.

THE PROGRAM IN OPERATION

The actual conduct of the program, at least in terms of the mechanics of its operation, essentially followed the design set forth by the planners. The pre-kindergarten component was in the hands of experienced personnel both in regard to the teachers and the educational assistants. On-site visits gave no cause for concern in regard to the staff's competence or committment to children. Both teachers appeared to work well with their aides and evidenced a good understanding of how to organize a classroom and conduct a program for pre-schoolers.

The pre-k-3 and pre-k-4 classrooms were essentially similar in their operation. Each consisted of a morning and an afternoon group of children. The class rosters were about 15 for each of the four sessions although on visits it was rare to find more than 10 to 12 children present on any given day. The rooms appeared to be well supplied with appropriate equipment and the selection and use of materials, both commercial and teacher-made, seemed good. Children were encouraged to move about freely and choose from a variety of possible educational activities available to them. These involved individual activities such as painting or puzzle solving as well as group activities in which social interaction and a cooperative spirit was stressed and encouraged.

Beyond the free play and use of various manipulative materials, the teachers also conducted individual and small group sessions calculated to enhance or develop particular skills. The emphasis took a variety of forms including number, writing, listening or speaking skills. Such lessons were kept fairly brief but appeared to be conducted on a regular basis. Both the teacher and the educational assistant conducted such activities and their usefulness was clear. At other times, the entire group was called together and the teacher read the children stories and engaged them in discussion about the sequence of events or the behavior of individuals. Other large group lessons included singing or activities involving rhythmic movement and muscular coordination. This too appeared to occur on a regular basis. In general, the program was well organized and intelligently conducted.

The Perceptual Unit was in its second year of operation and like the Pre-K program, benefited organizationally from the prior experience. The teacher appeared well trained and knowledgeable in the specifics of the particular perceptual program that had been selected for use. She and her educational assistant worked with approximately 30 students on a regular basis, meeting with them individually two or three times a week.

On the basis of prior diagnosis, each child was prescribed a sequence of activities intended to remediate areas of perceptual difficulty that had shown up in the testing. Some of the areas of concern included visual-motor skills, auditory sequencing, role sequencing, intermodal dictation, and auditory discrimination. If test results in these or other areas indicated weaknesses, the perceptual unit staff utilized a program of activities and specifically designed or selected materials to remediate the problem. The amount of time spent with a particular child depended upon the extent of the initial problem as well as the child's progress. A good account of the philosophy and workings of the program is given in an article published in the July, 1967 edition of the American Journal of Orthopsychiatry, entitled "Reading Disability: Teaching Through Stimulation of Deficit Perceptual Areas" by Silver, Hagin and Hersh.

The Reading Skills Centers were organized precisely along the lines described in the proposal. For reasons that will be explained more fully later, the two new centers faced some considerable difficulty in their initial organization. Once organized, however, the initial design was adhered to and followed.

In operation the program called for diagnosing pupils in grades 4-6 in the three target schools. Classes were assigned to visit the center on an average of three times a week, though this was expected to vary with need. The reading program itself was expected to be individualized, relying heavily on the proper choice of self-instructional material that could be assigned by need and which would allow a child to progress at his own speed. The proposal mentions the general procedure that was used by the teacher: pre-testing, distribution of work folders and program cards, assignment of material or activities based on need, periodic evaluation of progress charts, and post testing. In order for the program to function, an initial period was required in which the children were trained in the use of materials and taught the type of record keeping procedures that were to be used.

ANALYSIS OF RESULTS

I. Perceptual Unit

The evaluation objective for the Perceptual Unit called for an analysis of whether pupils who had undergone a program of remediation, evidenced a significant increase in reading achievement. The two instruments used to assess program results were the Wide Range Achievement Test (WRAT) and the Search Battery. The former is a reading achievement test and was administered to students in the program in September and May of the school year. The latter measure is composed of a series of separate tests designed to assess the neurophysical maturation of those functions related to reading. This test was also administered in the fall and spring. A correlated t ratio was used to compare pre and post test means. The results of the analyses are presented in Table I.

Table I

Results of the Correleated t Ratio Comparing
Pre and Post Test Means on the Search Battery

Perceptual Test	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	N	t
Auditory Discrimination	1.30	1.20	3.07	1.07	26	8.80*
Koppitz Bender	13.55	2.32	18.70	2.30	27	10.80*
Auditory Sequencing	1.30	1.20	3.07	1.07	27	8.80*
Intermodal Dictation	3.44	3.60	8.63	2.31	27	8.09*
Articulation	25.48	5.14	28.22	4.34	27	4.05*
Lamb Chop Matching	5.62	1.69	7.40	1.27	27	3.83*
Lamb Chop Recall	3.59	2.18	6.07	1.63	27	5.79*
WRAT	1.05	0.25	1.70	0.38	27	10.29*

* $p < .05$

As is clear, the Perceptual Unit met its goal. There is evidence of significant growth in each of the isolated areas. These mean score changes are a strong indication that the perceptual training offered is helping children make progress. One difficulty associated with the results must be noted. The majority of items included in the Search Battery form a regular part of the training program. To what extent the testing program itself contributes to the recorded progress is unclear but the possibility should not be overlooked.

It must be understood that attempts to measure the effect of a program do not always provide answers for the most significant questions. The entire area of perceptual development and its relationship to various educational skills is both complex and difficult to evaluate. The precise character of the relationship between perception and reading achievement is far from clearly developed. It has not been resolved, for example, whether children will eventually outgrow intitial perceptual handicaps on their own. There are dangers in taking this view since children may well suffer irreversable losses in the process, but it is an open question.

Such problems are not solely educational but economic as well for the resources available are not unlimited. The structure provided was inadequate for the training of teachers in either the diagnoses or remediaton of perceptual problems. This is a major drawback. Like so many service programs in the schools, the help is offered to a limited number of pupils and little provision is made for follow-up in terms of the total population served and the potential growth of participants. There is a definite need to closely define and prescribe a role for teachers. Workshops need to be conducted and there should be a plan for formal reporting of pupil problems to teachers along with a program of remediation. Many of the activities conducted and materials used in the perception program could be reproduced both in the classroom and at home. This potential should be exploited and closer consultation maintained with parents and teachers.

It is also recommended that district planners make a distinction between whether the major and immediate goal of the program is to improve perception or reading achievement. If the district believes there is enough evidence that perception is an important factor in reading, than improvement of the latter skill is a long term goal and program evaluation should be concerned with measuring the former skill.

II. Pre-Kindergarten Unit

In the proposal, three goals were set for the pre-kindergarten portion of the program. To assess the overall growth of students in the pre-K-3 and pre-K-4 classes, a modified version of the New York State Pre-Reading Assessment Test (see Appendix B) was used. The test was administered to all students in the program on a pre and post basis. The separate and combined results for the two classes are presented in Table I. Since there was a degree of pupil turnover, the data included represents only those students for whom pre and post test information was available. A correlated t test was used to determine if the mean differences in scores were significant.

Table II

Results of the Correlated t Test Analyzing the Pre-Kindergarten Reading Assessment Test

	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	N	t
Pre-K-3	16.24	4.78	20.06	3.47	17	6.29*
Pre-K-4	16.00	7.29	24.25	5.40	12	6.06*
Combined	16.14	5.82	21.79	4.77	29	7.34*

*$p < .05$

The results of the t test indicate significant progress was made in each of the two pre-kindergarten classes. The data is consistent with the type of progress observed during classroom visits. The program was well organized and intelligently conducted. There would appear little doubt that children have benefited from participation and should be better prepared for the more formal schooling that will follow.

The second program objective was to help students develop positive work attitudes such as completing educational tasks and working independently. For this purpose rating schedules were developed (see Appendix C and D) in cooperation with the two classroom teachers. The schedules included lists of activities that would form a part of the normal curriculum of most pre-school classrooms. Separate schedules, appropriate to the different ages of children in the two groups, were devised. Tasks selected included activities such as counting, recognizing and writing letter symbols, simple addition and subtraction and following directions.

Students were rated on their ability to satisfactorily complete the tasks. The evaluation goal was to have over 80% of the students be able to complete at least 50% of the tasks selected. The number of students successfully completing the schedule of activities is given in percentages in Table III. In order to determine if the levels set for success had been attained, a one-way chi-square analysis testing against the 80% criterion was employed. That data is presented in Table IV.

Table III

Number of Students Completing Tasks Listed by Percentage

Percentage of Tasks Completed	Pre-K-31	Pre-K-32	Pre-K-41	Pre-K-42 Completed
100	4	4	9	11
90	1	0	1	1
80	5	5	0	0
70	2	3	0	0
60	1	1	1	1
50	1	0	0	0
less	2	1	0	0

* The activities included were mainly selected from two sources listed in the appropriate Appendices.

Table IV

One-Way Chi-Square Analysis Testing Against an 80% Criterion

	N	Observed	Expected	X^2
Pre-K-3	16	15	13	12.25* Pre-
Pre-K-3	14	13	11	10.29*
Pre-K-4	11	11	8	11.00*
Pre-K-4	13	13	10	13.00*
Total	54	52	43	46.30*

*$p < .05$

As is evident, each of the four sections attained successful results at the levels prescribed. Thus, this program goal was also met. In retrospect, it seems likely that the schedule of tasks selected for pre-K-4 were too similar to those of pre-K-3. There is a year difference in the age of the children and the complexity of the tasks did not properly reflect this difference. Still there can be little doubt both from this and the Pre-Assessment Test results, that the children were performing well and making the type of progress that the planners had intended.

The last goal of this part of the program was to actively involve parents in school related activities. To assess this goal, a record was kept of parent involvement. The proportion of parents participating was statistically compared with the 50% criterion set for program success by a test of proportions. The results are given in Table V.

Table V

Results of One-Way Chi-Square Analysis Testing Against a 50% Criterion

N	Observed	Expected	X^2
53	43	27	13.75*

*$p < .05$

It is clear, though of questionable value for evaluation purposes, that the goal was met. Involving parents in school activities is a useful and worthwhile educational goal. It may result in greater parental awareness of the types of activities that could be extended into the home to aid their children. It could also serve to help parents communicate the goals they seek for their children more effectively to teachers. It is unlikely, however, that any of these results or their implications for education can be measured in any meaningful way. It is statistically certain that over 50% of the parents participated. The meaningfulness of this finding however, is unclear.

III. Reading Center Units

There were three goals set for the reading centers. The one perhaps most central to the program dealt with improving the reading skills of the participating students. In order to assess this goal, the California Achievement Test was administered on a pre and post basis to all students who used the centers. The performance level set for evaluation was a gain of .7 grade equivalent units. A correlated t ratio was used to measure pre and post test differences.

The results, presented in Table VI show that no significant gains were recorded. In order to assure fairness, the data for the two new centers (P.S. 15 and P.S. 188) is presented separately. These two centers operated under a distinct disadvantage. Because the proposal was funded quite late, the centers could order no new materials until well after the school year had begun. Indeed, the teachers could not even be assigned, since the centers technically did not exist. One teacher was hired in late September. As a result, these two centers were poorly equipped initially. In a program designed to be self-instructional in nature, this presented unique problems. Many materials did not arrive until December and that was probably the point at which the program really began to function as intended.

This may not explain the results, however. The center at P.S. 110, though fully equipped and benefiting from the experience of a year of prior operation, produced essentially similar results. None of the three centers reached the level of .7 equivalent units set as a goal. Indeed, in all three cases the differences reported are significantly below that level. One of the problems associated with providing a service outside of the classroom is that it often becomes a substitute for that activity within the classroom. What is intended as a supplement becomes instead a replacement. This may be a natural tendency and represents both the challenge and the limitation of such programs. It is not a sufficient reason to abandon the concept but the problem must be addressed. The centers have potential, particularly the self-instructional aspect. Further thought needs to be given to their organization and the more effective use of the teaching resources available. Based on the results, this program goal was not met.

Table VI

Analysis of the Results of Pre and Post Test CAT Scores for the Reading Centers

School	Pre-Test Mean	S.D.	Post-Test Mean	S.D.	N	t
P.S. 110	4.18	1.16	4.67	1.19	159	-5.43
P.S. 15 and P.S. 188	3.70	0.72	4.13	0.91	212	-7.63
Combined	3.91	0.96	4.37	1.07	371	-9.21

The .05 confidence level was used.

The second goal proposed for the Reading Centers was the improvement of student attitudes in regard to reading. An attitude scale was devised (Appendix A) for this purpose and administered to students in the fall and spring of the school year. The level set for success was that 50% of the pupils would demonstrate an improved attitude as measured by this scale. A correlated t ratio was used to determine whether differences between pre and post test means was significant. Then the percentage of students for whom significant differences had been reported was compared through the use of a one-way chi-square analysis testing against the 50% criterion. The results are presented in Table VII. The data includes only those students for whom both pre and post test scores were available.

Table VII

Results of the Chi-Square Analysis of the Reading Attitude Scale Testing Against a 50% Criterion

N	Observed	Expected	X^2
78	36	39	0.46

The .05 confidence level was used. See page 22.

The goal was not met. Participation in center activities did not result in significant change in reading attitudes for the majority of students. The validity of measures such as this is always subject to doubt. They rely heavily upon the accuracy of a student's self-perception and do not sufficiently cover all the aspects of reading that relate to attidutes. It is unlikely that reliable information about the conduct of a program can be so obtained. Ultimately progress must be measured by results in reading achievement. That is the purpose of improving attitudes and if this is accomplished at all, it will be reflected there. It would be difficult to recommend a program that consistently attained significant growth in pupil attitudes but failed to do so in reading achievement.

Perhaps the sole utility of such measures is their use in confirming other data. In this instance, there is agreement between the results in both reading achievement and attitudes. Neither appeared to be affected in a significant way by program participation.

The last goal set for the Reading Centers Unit was that of helping teachers successfully develop centers in their own classrooms. To assess this goal, questions (see Appendix E) regarding the overall usefulness of the centers were asked The number and proportion of teachers responding positively to items regarding the assistance they received was then tabulated and analyzed using a chi-square test with the expected favorable proportion being 60%. The results for each of the seven relevant items are presented in Table VIII along with a brief description of the topic.

Table VIII

Results of Analysis of Teacher Questionnaire
Using a Chi-Square Testing Against a 60%
Criterion

Topic	N	Observed	Expected	X^2
1. Helped improve children's reading.	15	5	9	-4.29
2. Helped improve classroom reading instruction.	15	2	9	-9.52
3. Center activities related well to classroom reading.	15	12	9	2.73
4. Children's attitude toward the Center.	15	10	9	0.40
5. Teachers' attitude toward the Center.	15	11	9	5.29*
6. Teachers set up their own centers.	15	13	9	4.73*
7. Reading Center was helpful in organizing classroom center.	15	13	9	4.73*
Totals	105	66	63	0.39

*p .05

As is evident, teachers responded positively to the great majority of items and the 60% criterion was met. The indication is that center activities related well to the classroom, teachers felt students enjoyed being there and teachers were encouraged to set up skill centers of their own. It is important to note, however, that a substantial majority of teachers did not believe that the centers were helping to improve children's reading. That is an interesting but not encouraging observation.

The Reading Centers Unit did not meet two of the three goals set for it. In fairness, it must be noted that reading is a complex and difficult skill to teach. It is rare for any program to show dramatic gains in a short period. Irrespective of the method used, time is required to build the appropriate foundation upon which later progress will be based. Time is also required to eliminate organizational defects and train children in the methods and procedures that will be used. This is particularly true in the case of a program that is attempting to employ self-instructional techniques that few students have had experience with. A year is probably too short a period to expect the progress that planners and evaluators had hoped for.

None of this is intended to suggest that given more time, certain progress will follow. It is necessary that thoughtful adjustments be made in areas that appear to offer the best promise of producing more satisfactory results. There needs to be a much better working relationship between classroom teachers and the personnel in the centers. There is evidence that the former do not clearly understand their role. In the proposal, it was suggested that demonstration lessons would be held, workshops and conferences conducted, small group instruction provided and new materials and concepts introduced. If such activities are to serve their intent, they must be organized and conducted on a regular basis. They were not so conducted this year,largely due to insufficient staff.

A program such as this one has two important aspects. One is organizing the physical facility itself, which includes obtaining the proper materials and preparing them for student use. The other, and most important, is training all involved personnel to use the available resources to accomplish the intended goal. The former purpose appeared to be better served than the latter.

It may also prove useful to examine alternative ways of scheduling classes. In the current program a total class would visit the center an average of three times a week. Some thought should be given to meeting with smaller groups, perhaps for shorter periods of time. Several teachers suggested this and felt that for some classes it would be less disruptive. Perhaps one of the three visits per week could be devoted to some small group instruction in which the remainder of the students stay in the classroom with their own teacher. This provides more manageable groups in both situations. It is possible that many students are not yet prepared to use self-instructional materials profitably. If so, small group instruction may better serve both them and their fellow students.

This program appears to have potential that has not been fully exploited as yet. As was mentioned, the danger of its becoming a replacement rather than a supplement to the classroom must be given serious attention. Change will also have to be made in its overall organization and functioning. It is likely, however, that given time and the advantage gained with experience, it can serve a useful purpose for both teachers and students. For the latter it can provide alternative approaches to learning reading and a variety of special materials that are not available in the average classroom. For the former, it can provide useful techniques or approaches as well as instruction in the use of new instruments and equipment. There is enough promise inherent in the structure to merit further consideration and additional opportunity to prove its worth.

SUMMARY AND RECOMMENDATIONS

It is difficult to make summary statements in the case of a program that was composed of three distinct elements. The attempt was made in each of the separate sections on analysis to report results clearly and offer appropriate comment in the light of those results. The perceptual program clearly met its goal. Any reservations expressed in regard to its future functioning must deal with the broad question of the relationship to reading achievement and adjustments in the scope of its influence. The pre-kindergarten program also met the goals set for it and appeared to function well. Offering such additional aid will almost inevitably profit the students involved and the sole question is that of educational expense. In the case of the reading centers, the central goal was not met and the progress reported, a source of concern. A more realistic appraisal of its purpose and the organization required to meet it is necessary. In particular, the specific roles of individuals involved in the program in various capacities needs to be more closely and carefully defined.

In general, the overall program appears useful. Its continuation is recommended though questions must be answered and further thought given to making structural and programmatic changes that offer better possibilities for realizing potential. As an aid in that direction, the following recommendations are made:

1. That the role of classroom teacher in regard to the Reading Centers be more clearly defined and a program instituted to train them to meet these defined responsibilities.

2. That Reading Center personnel give more thought to making changes in the way classes are scheduled to visit, such as increased small group instruction.

3. That the role of the Project Coordinator be more closely defined, i.e. functions specified, relation to centers and classroom teachers clearly, rather than generally, spelled out.

4. That the activities of the perceptual unit be accompanied by a training program for teachers in diagnosis and remediation of perceptual problems so that the direct influence of the program is not limited to so few students.

5. That decisions be made about the major focus of the perceptual program in regard to whether its short term purpose is the elimination of

perceptual difficulties or the improvement of reading. If the latter goal is chosen, then the success of the program should be measured by growth on a standardized reading achievement test.

6. That building administrators become more familiar with the program in order to oversee it properly and encourage the appropriate involvement of teachers.

7. That measures of program success, whenever possible, be stated in terms of pupil achievement and fewer indirect measures proposed.

TEACHING & LEARNING

UPLIFTING SKILLS CENTER

APPENDIX A

Student____________________ Teacher______________

School____________________ Tester______________

1. Think of your friends your own age. When you compare yourself to them how good a reader do you feel you are?

   (a) Excellent (b) Good (c) Average (d) Below Average (e) Very Poor

2. Think of the students in your class. How good a reader do you think you are when you compare yourself to them?

   (a) Excellent (b) Good (c) Average (d) Below Average (e) Very Poor

3. When you finish this school, what kind of a reader do you think you will be?

   (a) Excellent (b) Good (c) Average (d) Below Average (e) Very Poor

4. Forget how your teachers mark your work in reading. How good do you think your own work is?

   (a) Excellent (b) Good (c) Average (d) Below Average (e) Very Poor

5. How good is your understanding of what you read?

   (a) Excellent (b) Good (c) Average (d) Below Average (e) Very Poor

6. How much do you enjoy reading?

   (a)A Great Deal (b)Quite A Bit (c)An Average Amount (d)Very Little (e)Not At All

7. How much reading do you do at home?

   (a)A Great Deal (b)Quite A Bit (c)An Average Amount (d)Very Little (e)Not At All

8. How much help has your reading been in making you a better student in school?

   (a)A Great Deal (b)Quite A Bit (c)An Average Amount (d)Very Little (e)Not At All

9. Do you look forward to the chance to read in school?

   (a) Almost Always (b) Most of the Time (c) Sometimes (d) Seldom (e) Never

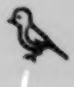
10. Do you think the teacher feels you are learning what he or she is teaching in reading?

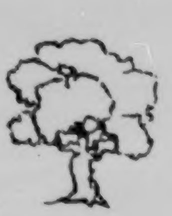
    (a) Almost Always (b) Most of the Time (c) Sometimes (d) Seldom (e) Never

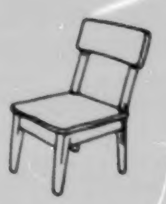
UPLIFTING SKILLS CENTER

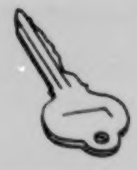
Appendix B

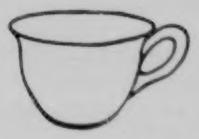
sample a











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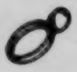

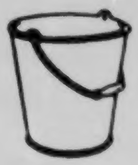

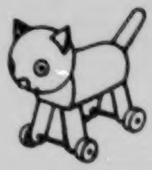

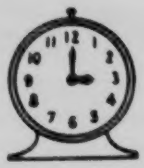

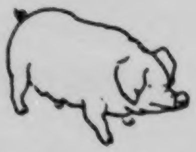

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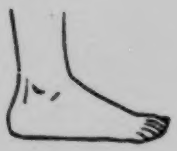

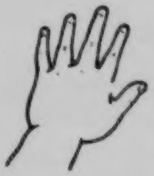

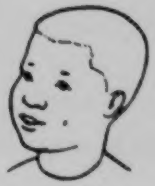

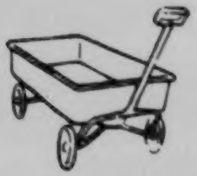

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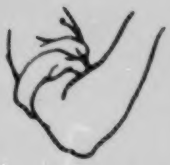

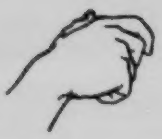

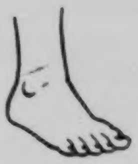

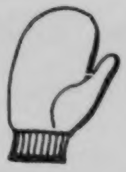

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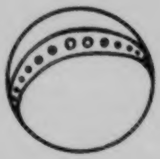

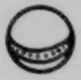

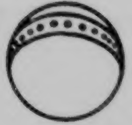

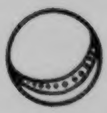

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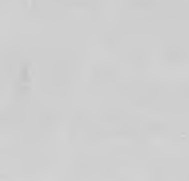

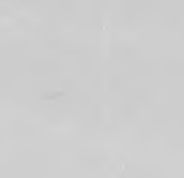

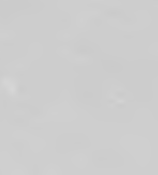

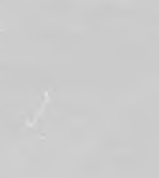

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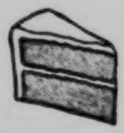
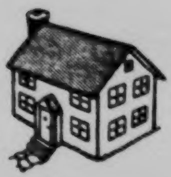
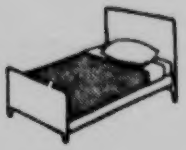
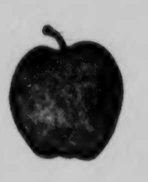

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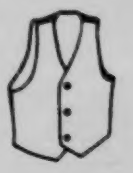
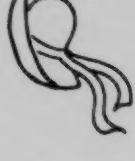
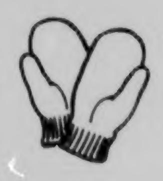
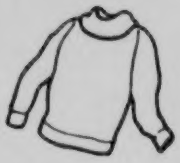

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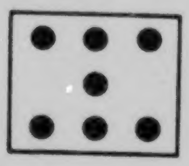

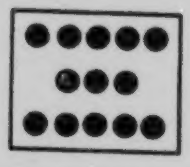

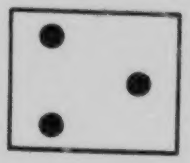

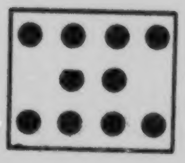

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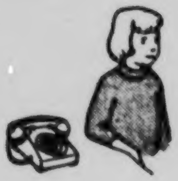

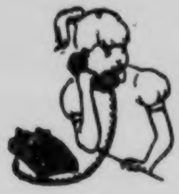

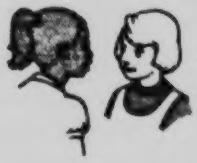

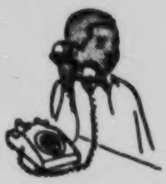

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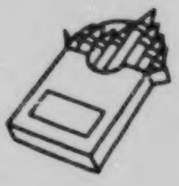
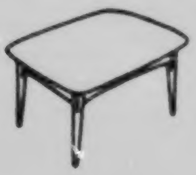
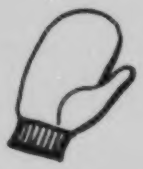
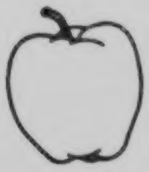

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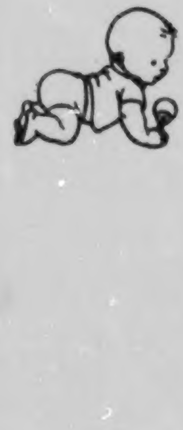
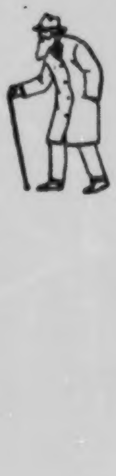
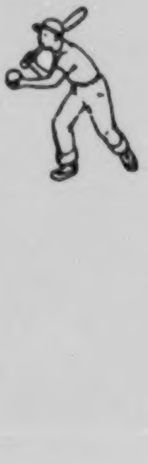

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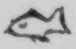

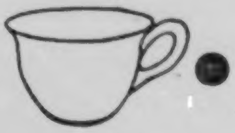

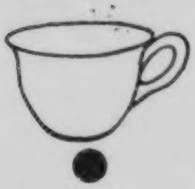

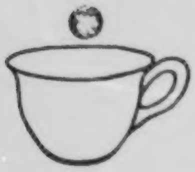

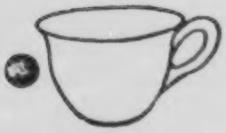

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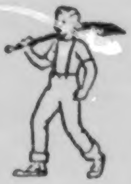

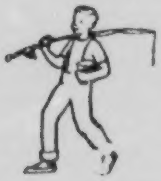

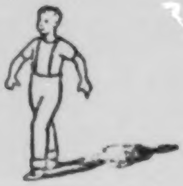

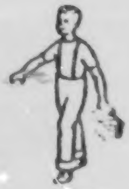

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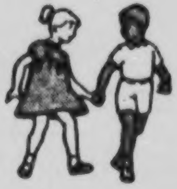

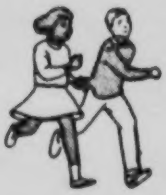

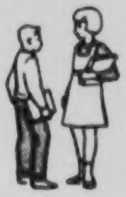

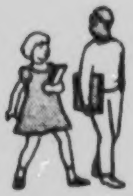

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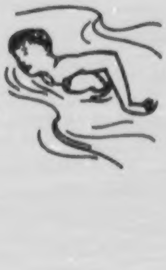

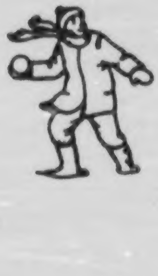

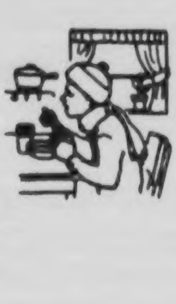

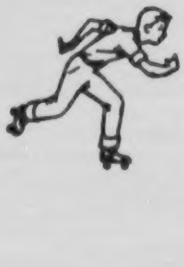

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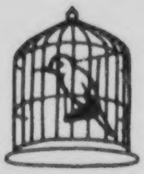

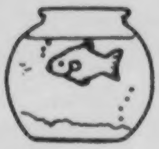

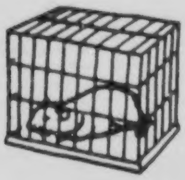

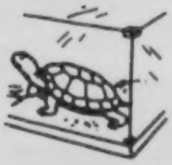

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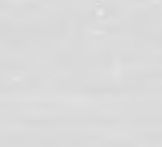

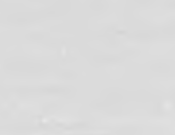

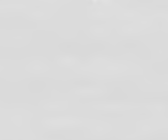

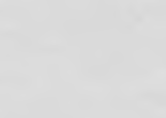

Sample

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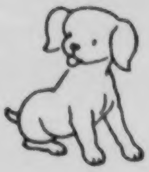
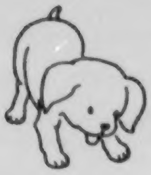
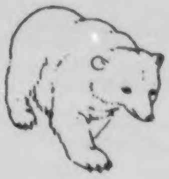
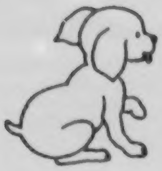

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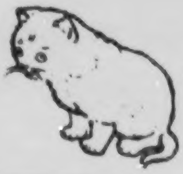
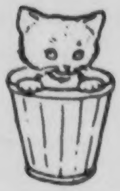
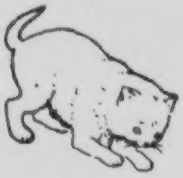
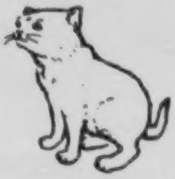

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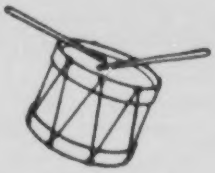
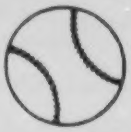
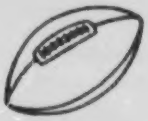
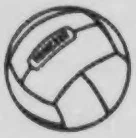

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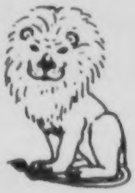
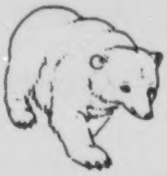
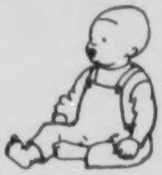
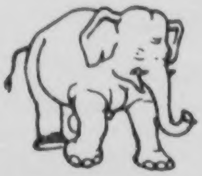

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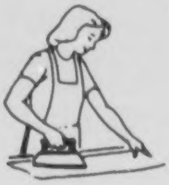
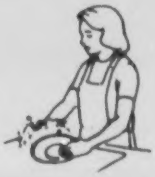
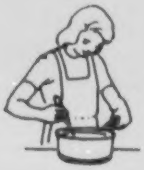
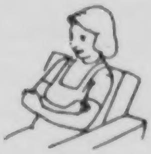

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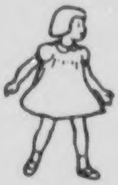
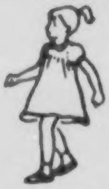
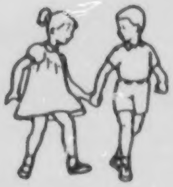
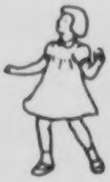

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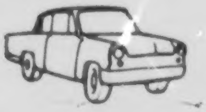
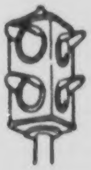
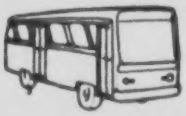
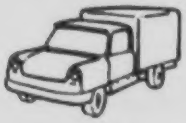

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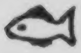	as	if	we	ox	as
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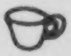
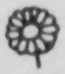
	coo	cat	too	coo	rug

Sample a 	C	H	N	C	A
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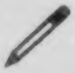
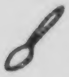
	g	g	p	y	q
	n	u	m	r	n
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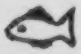
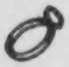
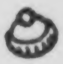
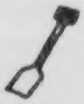
	as	if	we	ox	as
	to	lo	to	it	of
	or	ro	on	er	or
	us	use	us	is	as

TEACHING & LEARNING

Uplifting Skills

Appendix C

Schedule of Tasks for Pre-K 3 *

1. Toilet trained.
2. Wash own hands.
3. Hang up and care for own clothing (except shoe laces).
4. Use material appropriately - e.g. (do soak bruches after painting; don't paint on puzzles. etc.).
5. Count 1-10 (many can go to 20).
6. Recognize numbers 1-5 and 0.
7. Do simple addition and subtraction 1-5.
8. Recognize own name.
9. Spell own name.
10. Recognize many letters.
11. Can get main idea of pictures and stories.
12. Complete puzzle.
13. Identify whether child is boy or girl.
14. Identify primary colors.
15. Identify major parts of body.
16. Recognize basic shapes
17. Can follow directions given by adult.

*Sources

"Pre-Kindergarden and Kindergarden Curriculum Guide," Board of Education, 1969-1970.

Uplifting Skills

Appendix D

Schedule of Tasks for Pre-K 4 *

1. Toilet trained.
2. Hang up and care for own clothing.
3. Use materials appropriately (e.g. taking paper for drawing, don't use crayons on puzzles, books).
4. Count from 1 to 10 (many can count to 20 or 30).
5. Write numbers from 1 to 10.
6. Do simple addition and subtraction with the use of materials.
7. Write own name (first name).
8. Write most of the small case letters.
9. Get main idea of pictures and stories.
10. Learn how to handle books.
11. Complete puzzles.
12. Identify whether boy or girl.
13. Identify major parts of body.
14. Identify many colors.
15. Recognize basic shapes
16. Can follow directions given by an adult.

* Major Source:

Bouchard, Ruth and Mackler, Gernard, "A Pre-Kindergarden Program for Four-year-olds."

TEACHING & LEARNING

Appendix E

Uplifting Skills Center

Teacher Questionnaire

Would you please respond as fully as possible to the following questions about the usefullness of the Reader Center to you and your pupils?

1. How much help do you feel the Center has been in improving your children's reading this year?
   __ a great deal ___ a lot ___somewhat ____not much __not at all
2. Has the Center helped you in your classroom reading instruction?
   __a great deal ___ a lot etc. ________________________________
3. Do you feel the work of the Center relates well to your classroom reading?
   ___ a great deal ___a lot etc______________________________________
4. As a whole, how did your class feel about the Center?
   ____enthusiastic ___liked it ___neutral ___reluctant ____disliked it
5. How would you rate your feelings about the Reading Center?
   ____enthusiastic ___liked it ___neutral ____reluctant ___disliked it
6. Were you able to set up a modified skill center in your own classroom?
   ____yes ____no
7. Do you believe the Reading Center was helpful in teaching you how to set up such a skills center?
   ___yes ____no
8. In what ways has the Center been helpful to you?
9. What change would you like to see next year in organization?
10. How can the program help you better in planning your classroom program?

Function No. 33-3-6453

BEST COPY AVAILABLE

ELEMENTARY SCHOOL EDUCATIONAL ASSISTANTS

EXECUTIVE SUMMARY

Summary and Recommendations

The purpose of this study was to evaluate the effect of educational assistants on reading achievement and pupil adjustment to school. The results indicate that in both areas the effect of educational assistants was hard to isolate. One must take into account several factors however when analyzing these results. The My School Questionnaire is not as sensitive a measuring instrument as might be desired. Also, educational assistants tend to be placed in the lowest level class in any grade. Consequently, when such classes are compared to others on the same grade the classes may not in actuality be "comparable."

The following recommendations might be made to insure that a further study can reveal the true nature of the effect of the Educational Assistant Program:

1. The "My School Questionnaire" might be revised or replaced with an instrument more sensitive to the children's adjustment to school on an affective level.
2. The educational assistants may need more sophisticated training in basic remedial and diagnostic techniques in reading to better aid the classroom teacher.

ELEMENTARY SCHOOL EDUCATIONAL ASSISTANTS

The needs and priorities that were stated by District 1 at the beginning of the program were as follows:

There is a need to increase the adult contacts for the child in order to expand the adult resources to meet the various needs of the child.

There is a need to increase individualization of instruction by enabling more adults to devote more time to working with children who are below average norms in academic areas.

There is a need to reduce the ratio of pupils to adults, and in so doing, to increase the opportunities for schools to explore a variety of instructional strategies.

There is a need to enable the withdrawn, shy, retiring pupilsto have adult support and communication in his own native language so that he may be able to improve his learning environment and ultimately perform better.

There is a need to intensify efforts with children who are two years below average norms in reading so that they may be able to attain average reading ability as measured by standardized tests.

There is a need to provide experiences for adults in the community to work in the schools to learn about their roles as parents in the education of children and where they may identify with the common objectives of the school.

There is a need for the auxiliary adult to develop as an effective facilitator of learning in the classroom.

There is a need to extend the range of contacts and experiences for the pupils, teachers, and supervisors by their association in the instructional setting with adults that live and interact in the school community.

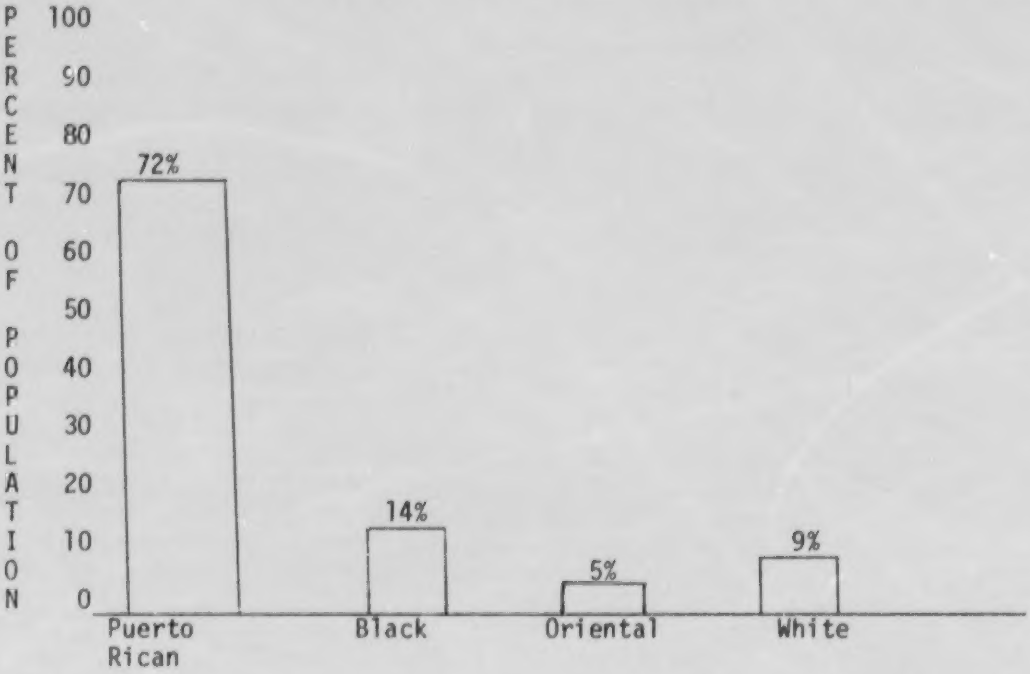
Research has identified a variety of roles that the educational paraprofessional has in the instructional setting, but the major purpose and function is to interact as an active participant and as a resourceful contributing member of the classroom team.

The above need and priorities were established as a result of recognition and assessment of demonstrable educational needs of the dictrict associated with poverty and with the critical deficiencies in basic learning skills as a result of reduced opportunities to pursue learning in a conducive environment. The needs and priorities were identified as a result of frequent meetings with the District Parent Advisory Council, and Community Superintendent, representatives of the Principals' Council and with the guidance of the Community School Board.

1. Program Description

District 1 consists of sixteen elementary schools and four junior high schools, All are Title 1 schools with a total of 18,032 public school students of whom 12, 970 are in low income level. Most of the pupils are two or more years below the national norms in reading, math, and basic skills as measured by the fourth level on the State PEP tests in reading or below the minimum language competence. The ethnic composition of the student population is 72% Puerto Rican, 14% Black, 5% Oriental, and 9% White with many who are non-English speaking.

Figure 1. Ethnic Makeup of School Population



There were 37 classes in grades 3-6 that were served by educational assistants. They were located in the following schools : PS 4, 15, 19, 20, 34,61, 63, 64, 97, 110, 122, 134, 137, 140, 160, and 188. This includes all the elementary schools in the District.

The educational assistants worked under the direction of the regular classroom teacher in the areas of classroom management and routines - preparation, distribution and collection of materials; small group and individual instruction, accompanying children on trips and monitoring and escorting duties. The educational assistants were assigned to those classes with the most educationally disadvantaged in accordance with the criteria established such as low reading scores and minimum language competence.

A typical day involved a conference between the educational assistant and the regular classroom teacher from 8:30-9:00 A.M. to establish common goals and objectives for the class. 9:00-9:15 consisted of taking attendance and safely storing outer clothing. 9:15-9:45 consisted of a language arts session in which the educational assistant made some contribution to the language learning of the children. From 9:45-10:00, there was a short break often consisting of a snack. 10:00-10:30 was devoted to mathematics; 10:30-11:15 physical education; 11:15-12:15 lunch; 12:15-12:30 was line up and return to class; 12:30-1:00 P.M. art; 1:00-1:30 social studies; 1:30-2:00 music; 2:00-2:30 science and from 2:30 - 3:00 review and wrap up procedures.

The objectives of the program were:

1) to improve academic achievement in classes served by educational assistants to the extent that reading achievement growth will be greater in these classes than in classes not served by educational assistants

2) to significantly improve adjustment to school of students served by educational assistants.

II. Procedure:

In order to evaluate whether the above objectives were accomplished the following methods of evaluation were employed:

1) To assess whether reading achievement growth in classes served by educational assistants was greater than reading achievement growth in classes not served by educational assistants: The 37 classes served by educational assistants were compared to 37 other classes at the same grade level not served by educational assistants. The April 1972 Metropolitan Achievement Test (MAT) reading scores as well as the April 1973 MAT reading scores were recorded for all students who received scores for both testing periods. The differences in mean gain score for experimental and control groups were statistically compared using a t ratio. The hypothesis was that the mean gain experimental will be greater than the mean gain control. This was tested using a one tailed test at .05 significance level.

2) To assess whether students in classes served by educational assistants have significantly improved in adjustment to school: The My School Questionnaire was administered in October and May to a 20% sample of children in the control and experimental classes outlined above. Total scores were computed for all items and differences between pre-test and post-test scores were calculated by class. Two criteria were examined statistically. The first required that mean change would be significantly positive for the experimental group. This was tested with a correlated t ratio using a one tailed test at a .05 significance level. The second criterion required that the difference in attitude towards school would be more positive for the experimental classes than for the control classes. This was analyzed using the classroom mean change score as a unit of measurement, using a t test of independent samples.

III. Results:

Hypothesis: The mean gain in reading achievement test scores for classes served by educational assistants will be significantly greater than for those classes not served by educational assistants.

Of the 37 sets of scores called for 28 were received. The scores from classes in P.S. 34, 64, and 188 were not received. Five seperate trips were made to each school in order to obtain the necessary scores. P.S. 64 claimed never to having received copies of their students' test results. P.S. 188 would not make the scores available and P.S. 34 submitted the scores one month after the close of the evaluation - too late for analysis. Two classes from P.S 122 had to be discounted from the results since they had no comparable classes on grade level. The Table below illustrates the results of 26 classes.

Table 1 Mean Gains in Reading Scores

		Experimental			Control				
P.S.	Grade	Gain Mean	SD	N	Gain Mean	SD	N	t	Sig.
110	5	6.38	8.79	16	7.88	7.54	16	-0.52	
110	3	5.38	6.31	13	8.40	8.68	15	-1.04	
20	5	5.89	13.02	9	1.60	3.89	10	1.00	
61	4	0.0	4.35	7	-2.17	2.64	6	1.06	
61	5	4.88	4.97	8	6.33	5.77	3	-0.42	
97	3	2.43	3.20	14	6.26	3.05	23	-3.64	*
97	3	4.58	4.32	19	6.45	3.97	22	-1.45	*
97	3/4	2.50	7.18	6	6.64	3.90	22	-1.91	*
19	4	2.39	1.54	23	1.18	0.84	13	2.62	*
63	5	0.33	0.55	8	0.55	0.65	8	-0.74	
15	3	0.24	0.30	10	0.20	0.34	13	0.29	
15	3	1.25	0.82	26	0.71	0.30	15	2.49	*
137	3	0.47	0.74	20	0.68	0.31	16	-1.09	
137	5	1.11	0.78	22	0.82	1.19	18	0.91	
134	4	0.34	0.24	16	1.01	0.85	24	-3.04	*
134	3	1.93	1.58	6	0.28	0.56	8	2.77	*
134	3	0.92	0.56	18	0.52	0.37	10	2.04	*
134	5	1.23	0.70	22	1.28	0.41	17	-0.28	
4	4	0.70	0.38	20	1.10	0.71	24	-2.28	*
20	3	0.98	0.37	13	0.39	0.50	17	3.60	*
4	6	0.72	0.84	14	1.14	0.93	20	-1.35	
160	3	0.86	0.47	16	0.49	0.70	14	1.72	
160	3	0.66	0.49	19	0.41	0.66	14	1.21	
140	3	0.63	0.33	21	0.68	0.63	29	-0.30	
140	3	0.47	0.33	26	0.68	0.63	29	-1.55	
140	5	0.91	0.49	19	0.65	0.51	21	1.65	

The results indicate that in only five cases was the mean-gain experimental significantly greater than the mean gain control. In 5 cases the mean gain control was significantly better than the mean gain experimental and in the remainder of the instances there was no significant difference between scores. It is worth noting that in over 50% of the cases (14) the control groups did better than the experimental, though not necessarily significantly.

Hypothesis 2a) When the My School Questionnaire is administered to classes with educational assistants using a pre - post design the mean change will be significantly positive. Table 2 illustrates the results by school.

Table 2

My School Questionnaire Scores

Experimental

	Pre		Post		Diff.				
	Mean	SD	Mean	SD	Mean	SD	N	t	Sig.
P.S. 19	24.7	2.4	24.3	2.5	-0.3	2.2	33	-1.01	
P.S. 34	22.6	4.1	23.1	0.5	0.5	2.8	46	1.22	
P.S. 61	21.1	4.1	23.7	2.1	2.6	4.8	33	3.14	*
P.S. 97	20.2	3.4	17.5	3.6	-2.7	4.8	18	-2.42	*
TOTAL	22.4	3.9	22.8	3.8	0.4	3.9	130	1.05	

Control

	Pre		Post		Diff.				
	Mean	SD	Mean	SD	Mean	SD	N	t	Sig.
P.S. 19	21.2	3.5	22.1	2.4	0.9	3.0	42	1.92	
P.S. 34	23.0	3.1	22.9	2.7	-0.1	2.1	48	6.48	
P.S. 61	22.5	3.9	22.4	4.6	-0.1	3.2	24	0.19	
P.S. 97	19.8	1.9	20.5	3.2	0.7	4.1	36	0.94	
TOTAL	21.7	3.4	22.0	3.2	0.3	3.1	150	1.32	

In only 1 school, P.S. 61, was there a significant improvement in pupils' adjustment to school over the year. In P.S. 97 it would appear that the educational assistant had a negative effect on pupil adjustment. This was also the case in P.S. 19 though not significantly so.

Hypothesis 2b) The difference in attitude towards school would be more positive for the experimental classes than for the control classes.

	Mean	S.D.	
Experimental	1.375	1.508	
Control	0.350	0.525	t = 1.191

This hypothesis was not supported by the data.

Summary and Recommendations:

The purpose of this study was to evaluate the effect of educational assistants on reading achievement and pupil adjustment to school. The results indicate that in both areas the effect of educational assistants was hard to isolate. One must take into account several factors however when analyzing these results. The My School Questionnaire is not as sensitive a measuring instrument as might be desired. Also, educational assistants tend to be placed in the lowest level class in any grade. Consequently, when such classes are compared to others on the same grade, the classes may not in actuality be "comparable."

The following recommendations might be made to insure that a further study can reveal the true nature of the effect of the educational assistants program:

1. The "My School Questionnaire" might be revised or replaced with an instrument more sensitive to the children's adjustment to school on an affective level.
2. The educational assistants may need more sophisticated training in basic remedial and diagnostic techniques in reading to better aid the classroom teacher.

TEACHING & LEARNING

Appendix A

MY SCHOOL QUESTIONNAIRE

Name______________________________ Class____________

School______________________________

Circle the answer that tells how you feel.

1. The teachers in this school want to help you. YES SOMETIMES NO
2. The teachers in this school expect you to work too hard. YES SOMETIMES NO
3. The teachers in this school are really interested in you. YES SOMETIMES NO
4. The teachers in this school know how to explain things clearly. YES SOMETIMES NO
5. The teachers in this school are fair and square. YES SOMETIMES NO
6. The boys and girls in this school fight too much. YES SOMETIMES NO
7. This school building is a pleasant place. YES SOMETIMES NO
8. The principal in this school is friendly. YES SOMETIMES NO
9. The work at this school is too hard. YES SOMETIMES NO
10. What I am learning will be useful to me. YES SOMETIMES NO
11. The trip to and from school is too long. YES SOMETIMES NO
12. I wish I didn't have to go to school at all. YES SOMETIMES NO
13. This is the best school I know. YES SOMETIMES NO
14. The work at this school is too easy. YES SOMETIMES NO
15. I work hard in school but don't seem to get anywhere. YES SOMETIMES NO
16. I've learned more this year than any earlier year. YES SOMETIMES NO

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Function No. 33-3-6454

DIAGNOSING READING DIFFICULTIES

EXECUTIVE SUMMARY

Recommendations

1. The Diagnosing Reading Difficulties Program began under severe conditions, but through the perserverance of the Coordinator seemed to positively fill a need recognized in the district. The program should be recycled for the 1973-74 school year.

2. Because many teachers had to miss training sessions because of conflicts with other required staff meetings, the district should release teachers in in-service training sessions from these other obligations for the duration of the training program.

3. District wide and city in-service credit should be given to all teachers satisfactorily completing the training program.

4. A remediation service should be provided for those students displaying the need during the time that teachers are undergoing training. Even though the teachers may not have the skills and abilities until the completion of the program, educational assistants should be trained before hand to work with the children whose disabilities demand immediate attention.

5. The coordinator should explore the feasibility of using a single, comprehensive diagnostic instrument to replace the multi sub-test diagnostic battery presently being used. It is recommended that a test such as the Slingerland Screening Test for Specific Language Disabilities be used.

DIAGNOSING READING DIFFICULTIES

Program Description

The Community School Board funded by the State Urban Education Projects Program has instituted in Manhattan District Number 1 a program for diagnosing reading difficulties. It is designed to help prevent reading failures in grades 1 and 2 by training teachers to identify reading difficulties of their students, and to help the teachers plan a program of remedial instruction in the use of teacher-prepared and commercial instructional materials. Although this program was discontinued for re-cycling in 1971-1972, for lack of funds, it was recycled for 1972-73.

The objectives of the program were:

1. For the Coordinator of the program to work with pupils referred as experiencing reading difficulties by their classroom teachers in order to prepare a diagnosis and prescription of the pupils' needs.

2. For the Coordinator to suggest techniques and skills as well as materials of instruction--teacher made materials, audio-visual equipment and instructional tools--which can be implemented into the basic classroom program. Records were kept by both the classroom teacher and the Coordinator.

3. For the Coordinator to work in an in-service format with the teachers participating in the program to strengthen their ability to diagnose and treat their own students in their classrooms.

The program was scheduled to begin on September 1, 1972 and end on June 30, 1973. Because of difficulty in hiring a qualified person to be Coordinator, the program did not officially begin until November 27, 1972. The program operated five days a week during the regular school hours. The following were identified within District #1 to be target area schools: P.S. 34, 63, 122, 134, and 137.

The students for the program were selected from among the eligible educationally disadvantaged pupils in the target areas on the basis of teacher recommendations and referrals. All pupils referred were tested by the Program Coordinator.

A total of 228 students were referred for diagnostic/prescriptive analysis. All pupils, except those referred late in the school year, were administered a battery of diagnostic tests. Those referred late in the year received a sub-test of the diagnostic battery as well as the standardized tests given to all other students. The diagnostic battery consisted of such standardized instruments as the Roswell-Chall Auditory Blending Test, the Roswell-Chall Diagnostic Reading Test of Word

Analysis Skills, and the Wepman Auditory Discrimination Test, and informal measures of auditory-vocal sequencing, sight vocabulary, oral reading, attitude laterality, rhyming words, auditory discrimination, verbal articulation, copying of geometric designs and letters, and writing.

After the diagnosis and prescriptions were prepared, the Coordinator met with the participating teachers in small group or individual conferences to discuss implementation of the recommended techniques as a class activity as well as individual or small group reinforcement. All project teachers were given small booklets of activities in areas of pupil needs. In addition to the project teachers, all kindergarten and pre-kindergarten teachers in the project area schools were also given copies and an explanation of activities so that they might also become aware of techniques and include them in their curriculum plans.

Training sessions for participating teachers and/or teacher assistants took place in each of the five target schools. Emphasis was placed on explaining diagnostic techniques and reading tests so that project teachers might be able to begin diagnosis of students in their classes. Training sessions also included demonstration and distribution of instructional materials to use as either small group or whole class activities, depending upon the particular materials. Time also was devoted to demonstration of materials and techniques which were intended to develop perception of color, form, size, sound and spatial relationships.

At each of the target schools, the Coordinator established Early Childhood Reading Curriculum Centers where program materials were displayed. Arrangements were made so that participating teachers could borrow the materials for use in their classrooms.

An important addition to the program was made in April 1973. An educational assistant was hired to work in P.S. 63, 134, and 137. His attention was devoted to small group work and final evaluation testing as well as diagnostic reading analysis in Spanish.

The Coordinator was able to extend the scope and effectiveness of the program by establishing cooperative efforts with two volunteer programs working in the district to evaluate needs of students with whom they were working and materials which would best aid in students' improvement. Also, in cooperation with the Coordinator of the Bilingual-Bicultural Program (Title VII), the criterion diagnostic tests were translated into Spanish. This provided service to those children who were receiving instruction in their native language.

The Coordinator was also involved in other activities within the District. She attended faculty conferences to explain behavioral objectives for determining student reading progress, spoke at parent workshops to explain and discuss the program, appeared as a guest speaker at an inservice reading course, and consulted with classroom teachers about class placement and the establishment of skills centers in the schools.

EVALUATION OBJECTIVES

Evaluation of the Program was made through site visits and the assessment of pre and post test results.

Evaluation was made in order to:

1. Assess whether diagnostic screening had been provided for the referred pupils and whether a prescriptive corrective program was instituted for each student.

The program records were examined for the actual number of children for whom diagnosis and planning was provided, and compared with the criterion. The records of each child who was served during the school year were examined for changes in reading achievement. The Metropolitan Reading Achievement Test scores of the children in second grade were analyzed on a pre-post test design with a correlated "t" ratio using a real versus anticipated results design. The children in the first grade were administered the Metropolitan Achievement Test Primer and the results were compared to the district-wide performance of non-target area pupils.

2. Assess whether the training of participating teachers was provided and whether these participating teachers were able to satisfactorily diagnose and treat typical reading problems.

The program records and a pre and post test case study served as the main source of data. The names of teachers who agreed to participate in the training program were collected after eight weeks of program involvement. At this time a typical reading case, developed by the program coordinator, was administered. The case served as the basis of a test which induced questions of both a diagnostic and prescriptive nature. A satisfactory score was considered as 80% correct. The test was readministered in June to all teachers who participated for the five months of the school year.

GENERAL EVALUATION OF PROGRAM

The principal investigator made site visits on December 6, 1972, January 18, 1973 and April 10, 1973 to observe the implementation of the program. During these visits the investigator had the opportunity to discuss the program with the Coordinator, to review the instruments being used, and to observe a curriculum center at one of the target schools.

Despite the late start, the program seemed to be functioning extremely well. This was in great part due to the highly qualified, conscientious person selected as Coordinator. In a short period of time, and working within the limitation of already functioning school programs, she efficiently instituted programs of diagnostic screening, remedial instruction and teacher in-service training. She quickly identified ways in which the program could be integrated with other programs in the District target area schools.

Evaluation Results

1. Diagnostic screening was provided for 228 students. One hundred and 65 children received full pre and post diagnostic screenings. An analysis of pre and post test scores on the battery of diagnostic tests was made. Table 1 summarizes the results of this analysis. The means are indicated in raw score points. The analysis indicates that all post test scores were significant at or beyond the .01 level. The conclusion that can be drawn from this analysis is that the diagnostic /prescriptive feature of the program appears to have been successful in that the children made significant gains in those skill areas which were of concern and which received attention.

2. In order to assess whether the training of participating teachers enabled them to satisfactorily diagnose typical reading problems a post test case study was administered. Table 2 summarizes.

Table 1 Tests of Significance on Mean Raw Score Gains of Diagnostic Battery Sub Tests.

Skill Area	Pre Mean	SD	Post Mean	SD	N	t*
Letters	.83	.27	.94	.15	166	7.13
Words	.54	.30	.74	.26	163	11.54
Digit Span	5.30	1.20	5.91	1.24	137	8.63
Rhymes	.47	.34	.65	.36	163	9.16
Consonants	.58	.31	.82	.23	165	15.45
Letters	.76	.28	.91	.16	165	10.24
Syllables	.54	.30	.78	.26	165	14.10
Colors	.85	.25	.98	.57	165	2.89
Forms	.52	.27	.78	.51	165	6.18
Body Parts	.93	.13	.97	.08	165	5.50
Initial Consonants	.46	.33	.66	.37	165	8.95
Final Consonants	.35	.30	.51	.34	161	10.04
Auditory Discrimination	.64	.18	.77	.16	166	13.73

*p $<$.05 level

The data about the teachers who participated in the program.

Table 2 Analysis of Program Participants (Total N=43)

	Completed initial case study	Attended all training sessions	Completed an individual student analysis	Completed final case study	Passed with 80% or better
Teachers	22	11	13	17	16
Other Staff	7	8	3	6	6

Of the 21 participants who successfully completed the final case study, 16 had attended all of the sessions or had undertaken an individual student analysis under the guidance of the Program Coordinator. Based upon this evidence, it seems the program had a successful impact on the participating teachers' ability to diagnose learning disabilities.

Recommendations

1. The Diagnosing Reading Difficulties Program began under severe conditions, but through the perserverance of the Coordinator, seemed to positively fill a need recognized in the district. The program should be recycled for the 1973-74 school year.

2. Because many teachers had to miss training sessions because of conflicts with other required staff meetings, the district should release teachers in in-service training sessions from these other obligations for the duration of the training program.

3. District-wide and city in-service credit should be given to all teachers satisfactorily completing the training program.

4. A remediation service should be provided for those students displaying the need during the time that teachers are undergoing training. Even though the teachers may not have the skills and abilities until the completion of the program, educational assistants should be trained before hand to work with the children whose disabilities demand immediate attention.

5. The Coordinator should explore the feasibility of using a single, comprehensive diagnostic instrument to replace the multi sub-test diagnostic battery presently being used. It is recommended that a test such as the Slingerland Screening Test for Specific Language Disabilities be used.

Function No. 33-3-6455

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PROJECT READ

EXECUTIVE SUMMARY

Project Read is described as an individualized, self-pacing reading program designed to increase the interest and reading abilities of selected pupils in P.S. 140 in Manhattan. The Sullivan materials, a set of programmed reading aides, form the basis of instruction for students in the project.

The objectives for the program are as follows:

1. To increase the reading achievement of participating pupils in P.S. 140 Man. to the extent that their gains will be equal to that of advanced reading groups not included in Project Read.
2. To assist all teachers participating in Project Read to acquire greater functional ability in the use of the materials chosen for the program.

Analysis of Metropolitan Achievement Test scores and a questionnaire designed to measure teacher growth in the use of project materials led to the following results:

1. Achievement Test results did not indicate that significant gains, beyond the level set for growth in the program, had been attained.
2. Questionnaire results indicate that teachers did make significant gains in their ability to use instructional materials associated with the program.

In spite of the lack of statistically significant gains in reading, it appeared that students had made acceptable progress. Continuance of the program is recommended based on the reasonable levels of growth recorded and the potentially beneficial effect upon student attitudes and work habits. Concern is expressed in regard to the overall results in comprehension. It is strongly recommended that appropriate supplemental materials be used in the teaching of comprehension skills and that a planned program be devised that offers assurance that the use of such materials will be integrated into the regular structure of Project Read.

PROJECT READ

The Project Read proposal was developed in conjunction with the Community Superintendent, representatives of the Principals' Advisory Council, the State Urban Coordinator and the members of the District Parent Advisory Council. The proposal is highly similar to one originally submitted two years ago on a smaller scale and the project has been in operation since that time. The program involves all the children in P. S. 140 (Manhattan) who are taught reading through the use of the Sullivan programmed reading materials.

P. S. 140 is an eligible Title 1 school and is part of District #1, which encompasses the Lower East Side of Manhattan. The school has a pupil register of approximately 860, of which some 720 (or 85%) are from low-income homes. As indicated by testing completed last year, 64% of the pupils in the school are below the fourth level on New York State PEP tests in reading or fall below minimum language competence. Over 89% of the pupils are below grade level in reading when the Metropolitan Reading Achievement tests are used as the measuring norm and there is an average of better than two years of reading retardation.

As is stated in the program proposal, there is an obvious need to concentrate on problems associated with reading if pupils in the school are to attain the skills that will allow them to develop their full potential. In order to accomplish this, the Project Read format was developed. As a pilot program, the project utilizes the Sullivan Reading Program material developed and distributed by Behaviorial Research Laboratories (BRL) of Palo Alto, California. The intent as described in the proposal is to "provide programmed reading instruction to selected children in grades K-6 with priority to those in grades K-4 who have exhibited specific levels of disability on standardized tests."

The BRL program is essentially centered around the use of programmed workbooks, developed to improve specific reading skills. There are some twenty-five different workbooks available for students in grades K-6. This affords the teacher the opportunity to meet various children's needs at many different levels of development. A diagnostic test is given to ascertain the pupil's reading level and the appropriate workbook is then assigned. Since the workbooks are self-instructional in nature, the pupil is encouraged to progress at his own speed with teacher assistance available when needed. Teacher permission to continue, however, is built into the program at certain perdetermined levels. This allows the instructor to evaluate the pupil's progress and insure that he or she is fully prepared to move on to the next level of difficulty.

The skill workbooks are supplemented by a number of comprehension readers which are utilized when particular levels of achievement have presumably been attained. While a wide variety of reading skills are given attention, the Sullivan materials and the program prescribed by BRL lay heavy stress on the development of phonic skills. The programmed workbooks stress the development of such skills and the comprehension readers complement this development by forcing the learner to employ these skills as the text is read.

The Sullivan reading materials have been widely used in the schools. The full program is known and utilized in many areas of the country and the parent company, BRL, has had much experience in the development of programmed materials for instructing children in different content areas. The experience extends to performance contracting in which the company has assumed complete responsibility for the educational program in a particular school or schools. Under such an arrangement, BRL guarantees specified levels of pupil performance on standardized tests or forfeit payment for their services. At least one such project (as well as many others that are similar to Project Read) is being conducted with children in inner city schools. Thus, there is ample data and experience for District One personnel to draw upon when making decisions about changing or implementing specific aspects of the program.

PROGRAM DESCRIPTION

The clear intention of the Project Read program is to break the cycle of reading retardation that results in children falling further below national norms as they progress upward through the elementary school grades. The original proposal states that "Project Read is a preventive program for beginning readers and a remedial vehicle for those who are reading at least six months or more below grade level and who will achieve their normal grade by the end of the school year as demonstrated by pre and post testing."

In the program description, particular attention is given to the need to provide teachers with a new approach and to help children in the lower grades develop the necessary reading skills. "There is a need to provide lower grade pupils with new programmed materials structured to encompass a wide range of reading levels to supplement the traditional approaches and materials in order to facilitate pupil growth." A further intent of the program is to "provide teachers with a new approach in developing decoding skills for pupils who have not been successful under the traditional pedagogical approach."

The program description also defined the manner in which the student population for Project Read was to be selected. The choice of participants was to be based upon teacher recommendations, informal teacher tests and the results of the Metropolitan Achievement Test scores. Priority was to be given to students who were retarded in reading at least six months and who were in grades K-4. Students enrolled in the program work with the Project Read materials a minimum of one hour daily. A major hope of the program was that the daily use of such materials by the students would result in their making greater average gains in reading than they could otherwise have been reasonably expected to make without benefit of these additional educational aides.

Project Read, then, is an individualized, self-pacing program of reading instruction designed to increase the interest and reading skills of its participating students. It was also believed that because the materials utilized were programmed and self-instructional, the students would attain a greater capacity for self-study and a feeling of personal responsibility for their own success.

Since the Corrective Reading Teacher and the participating teachers in the program are remunerated through tax levied funds, the only expense the program bears is that of one educational assistant and the cost of the materials used by the children. The cost of consultant aid is born by BRL. The Corrective Reading Teacher is responsible for providing the overall direction of the program and training any new teachers in the use of the appropriate materials and teaching techniques.

The program specifies that reading lessons using Sullivan materials will be conducted for approximately an hour daily, beginning with the first hour of school. An additional hour of instruction in reading, utilizing a variety of teacher-made and/or commercially prepared language arts materials, is also to be provided later in the school day. It is believed that the rigorous use of the Sullivan materials will provide students with the fundamental tools necessary to improve their ability to read. The additional time spent on the language arts will provide both the opportunity to apply these skills and the additional practice in reading comprehension that will give them meaning.

EVALUATION DESIGN

The proposal, as submitted to the State Urban Program, cited two specific objectives as its goals:

1. To increase the reading achievement of participating students in P. S. 140M to the extent that their reading achievement gains will be equal to that of the most advanced reading groups not involved in Project Read.
2. To assist all participating teachers in acquiring greater functional ability in using Project Read materials.

The evaluation program drawn up by Teaching and Learning Corporation was prepared in cooperation with the planners of the Project Read proposal. The evaluation was designed to test the two major objectives listed above. In order to test the first objective, it was determined that a sample would be drawn which included all children in P. S. 140M who were taught using Project Read materials. This would include all pupils in grades K-6 with the exception of the most advanced readers who were grouped homogeneously in one class at several different grade levels. Children in such classes did not use Project Read materials. For grade levels three through six, this meant first exponant classes (i.e. 3', 4', 5', 6') who had been homogenously grouped on the basis of their superior reading achievement.

All children included in the sample were tested in September and April using an appropriate level of the Metropolitan Achievement Test. The achievement scores of grades two through six were compared with national normative performance. The mean grade equivalent reading change scores were then statistically compared with an hypothesized change of .7 equivalent units. The design provided that a one-tailed t ratio be employed and that the .05 level of significance be used. In the opinion of the evaluator, the analysis of this particular objective would have been better served through the use of a real versus anticipated design. In such an evaluative procedure, the student's anticipated growth in reading from September to April (.7 units) is compared to his real progress as determined by the measuring instrument (MAT). This has the effect of measuring each pupil in the sample against himself, using his expected growth as the criterion variable. Unexpected progress, growth beyond that which could have normally been expected, could thus be attributed to the impact of the program. The reasons for suggesting such a design are explored more fully in a later section.

The second major goal of the program was to increase teacher skills in the use of the programmed reading materials. To measure the accomplishment of this goal, a test requiring knowledge of special features of the Sullivan materials was developed in coordination with the Project Director and personnel from Behavorial Research Laboratories. The evaluator met with the BRL representative at P. S. 140 and laid out the broad parameters of such a test. Additional data was provided by personnel from the New York office of BRL in the form of printed material that defined particular sets of skills and program objectives for teachers. The information was organized in the form of a questionnaire (see appendix A) and administered to all teachers in P.S. 140 in October and May.

It had originally been planned to evaluate teacher growth in the ability to use the Sullivan materials through the use of a one-way analysis of covariance, using pretest scores as the covariate and participation or no participation as a predictor. For reasons explained in the analysis section of the report, this did not prove possible. In its place, a correlated t test was employed, comparing pre and post test results on questionnaires distributed to Project Read teachers only. A .05 confidence level was used.

THE PROGRAM IN OPERATION

A number of on-site visits were made by the evaluator at regularly spaced intervals during the school year. During these visits conversations were held with the project director and/or the principal of P. S. 140. Project Read classrooms were also visited and the views of teachers and educational assistants solicited.

The program in operation is well organized and effectively implemented. The Sullivan materials were used for a minimum of one hour daily. On the basis of the visits, none of which were prearranged, it is clear that most teachers devoted more than the alloted time to the program. It was extremely rare to find a class that was not using the Project Read materials at the stipulated time or in the recommended manner. Teacher enthusiasm for the materials and the program remained high throughout the school year. It was clear that the staff felt the Sullivan materials were enabling their children to improve their reading skills and teachers were quick to point out the advantages of this program over the traditional approaches they had previously used. They emphasized the self-instructional quality of the materials and pointed out how this greatly aided individualization of instruction. They felt the materials provided children with a clear, well-defined series of tasks at levels appropriate to their abilities. Also mentioned as a real strength was the fact that students had a much better idea of their own progress. They not only proceeded at their own pace but had a yardstick by which they could measure their own growth. Many felt that this resulted in additional incentive and it was evident during visits that students took pride in the amount of work (generally expressed in the number of workbooks completed) they had accomplished. Some teachers also felt that children were improving their work habits and developing a greater sense of personal competence. As evidence they cited a greater capacity for self-direction on the part of students.

To summarize, teachers communicated a clear impression of confidence in the direction of the program and the particular advantages they felt it provided. This impression was in no way contradicted by the climate in the classrooms visited and it is clear that the positive attitudes are themselves a contributing factor in the successful conduct of classroom activities.

In general, most classrooms had a minimum of three reading groups and each of these met with the teacher every day for group instruction. The group instruction centered around review,reinforcement activities or further extending skills that were within the ability range of the particular students. Unlike traditional programs, the fact that these pupils were part of one reading group did not result in their being assigned the same workbook or reading materials, Outside of the group each continued to progress at his own rate in whatever workbook level his ability and efforts had allowed him to reach. This is one of the real strengths of the program. The opportunity to progress through various workbooks at one's own speed did not force students to operate at levels that were either well below or well above their current capacity. The same was true of the comprehension readers.

While a teacher worked with one group, another group would continue on their own in the workbook and the third group would generally do board work or specific seat work that had been assigned. After an appropriate interval, the groups would rotate. Different board work was assigned and a different lesson would be taught by the teacher. This was invariably the pattern that was used in the different classrooms from grade levels two through six. Since the kindergarten and first grades contained a number of children who were not yet reading, both the program materials and teaching strategies differed. Large picture books were utilized and the teachers assumed more of the burden for instruction in these grades.

In brief, the execution of the program in the classroom appeared to be excellent throughout the year. Teacher attitudes seemed very positive and there was clearly much effort being expended. The staff demonstrated a clear understanding of the mechanics of the program and organized their classroom procedures accordingly. Teachers consistently expressed the belief that children enjoyed working in the program and there was much indication that this was true. Classrooms showed much evidence of work that was being done or had been completed in association with Project Read. Boardwork, posters, bulletin boards and corrected student work were visably displayed in most rooms. Additional materials in the way of flashcards, manipulative aides or reading related games, often made by the children, were also visable and available for use.

In addition to the classroom teacher, other staff resources appeared to be effectively utilized. The paraprofessional staff was closely involved in some of the rooms. They demonstrated a good understanding of the program and their skills were well used in most cases. They worked with individual children or with groups and were also available to check progress in the workbooks and comprehension.

The Project Coordinator also made significant contributions. She is a corrective reading teacher and has had over three years of experience with the program. Her leadership was clearly evident and her rapport with staff appeared to be excellent. Her office appeared to be a repository for not only the BRL materials themselves, but for a number of teacher devised worksheets and suggested activities that had been accumulated over the three years of the project. An educational assistant was provided for the Coordinator to aid in the classification and distribution of materials. This individual also met with children who had specific disabilities. In regard to the use of staff resources, it should also be noted that some effective leadership was provided by teachers serving as grade level chairmen. At least one such individual was highly knowledgeable and her skills, as well as those of others, were well used by the Project Coordinator. BRL also provided the school with a consultant who was to visit the school monthly to provide training services and conduct workshops. While this aspect of the program appeared to function less well than it had the previous year the service is an important one with much potential usefulness.

In summary, the day to day functioning of the program seemed to progress quite smoothly. Direction was provided, classrooms were appropriately organized and the necessary materials were readily available. The staff demonstrated not only a good understanding of the mechanics of the program and the appropriate use of materials, but a high level of personal competence as well. Interest in the project was high and teachers appeared confident in both their conduct of the program and the belief that students were making good progress in improving their reading skills.

Because several of the teachers seemed to be new to the program this year, it appeared that a good job of orientation had been done. The staff appeared to understand its role, knew the goals of the program, and understood how the materials were to be employed. During classroom observations, the vast majority of children appeared to be interested as well as profitably involved in a variety of reading activities. The board work that teachers provided was useful and consistent with the program's purposes. Teachers also made use of supplemental activities though it would still seem that additional attention to reading comprehension and a wider use of varied comprehension material is advisable.

The Project Coordinator appeared to be quite able. She demonstrated a clear knowledge of teacher strengths and weaknesses which should prove extremely helpful in providing the type of aid and follow-up activity that is necessary for the improvement of the program. Coordination and distribution of material was well organized and teachers were provided with the opportunity to share ideas and suggestions for new materials or activities.

RESULTS OF THE ANALYSIS OF READING SCORES

Metropolitan Achievement Tests in reading were administered to all students in the Project Read Program in September and April of the 1972-73 school year. The test is composed of two sections, one dealing with reading comprehension and the other with vocabulary. The data will be reported separately for each of these skills by grade level since it appears to facilitate analysis and allows specific aspects to be highlighted. As was explained earlier, .7 growth between the pre and post test was used as the suggested criterion. In Table I, the results of the analysis of the vocabulary section of the reading test are presented.

TABLE I

Comparison of Pre and Post Test Results on Reading Vocabulary

Grade	Pre		Post			Post-Pre	
Level	Mean	SD	Mean	SD	N	Difference	t
1	1.21	.39	1.86	.55	85	.65	-.96
2	1.86	.70	2.77	2.14	86	.91	.93
3	2.54	.89	3.28	1.13	80	.74	.52
4	3.04	.94	3.86	1.32	91	.82	1.36
5	3.74	1.74	4.76	1.70	94	1.02	4.70*
6	4.43	1.22	5.19	1.49	87	.76	.48

*$p < .05$

A brief explanation of the above table may be useful in later discussion. The next to last column shows the difference between pre and post test means in raw terms, i.e., a simple subtraction which yields the average growth over the year. The last column represents the results of the correlated t test which shows whether that difference is significantly greater than was predicted. A positive t value indicates that the post test mean is at least .7 greater than the pre test mean while a negative t indicates it is not. Significant t values are marked with an asterisk and indicate that the growth was significantly greater than .7, that is, the difference could not be attributed to chance at the specified confidence level. It is also possible to have t values that show growth which is significantly less than the gains hypothesized.

As is evident from the data, all classes in grades 2-6 registered gains that equaled the hypothesized growth level of .7 in raw terms. That is, the actual scores reflect what would be considered an average growth when judged by national norms, using the statistical analyses called for in the evaluation design, however, only the fifth grade scores yield results that are significant at the .05 level of confidence. In the light of such results, it must be concluded that in five of six cases the program did not achieve the goals set for it.

The second portion of the MAT that was administered dealt with reading comprehension. Again the breakdown is presented by grade levels with the pre and post means compared to the level of progress that had been predicted. The results appear in Table II listed below.

TABLE II

Comparison of Pre and Post Test Results of
Reading Comprehension

Grade Level	Pre Mean	Pre SD	Post Mean	Post SD	N	Post Pre Difference	t
1	1.44	.14	2.04	58	58	.58	-1.76
2	1.78	.58	2.32	.93	83	.54	-2.27
3	2.51	.98	2.99	1.04	80	.48	-3.07
4	3.23	1.04	3.91	1.04	72	.71	.12
5	3.99	2.04	4.77	2.13	94	.78	.78
6	4.67	1.65	4.49	1.64	88	.82	1.12

The data indicates that the upper three grade levels, at least in raw terms, met the hypothesized .7 level of growth that was set although none of the differences proved to be statistically significant. Given the .7 level set as a goal then, in no instance did the gains result in levels of growth that could not be attributed to chance. As is clear in the case of the lower three grade levels, the amount of growth did not even reach the hypothesized level. Indeed, the differences in all three instances are significantly below the level set. In regard to the results of the comprehension test, it must be concluded that the program did not achieve its goal.

EVALUATIVE COMMENTS

It is not an evaluator's role to apologize or make excuses for the apparent lack of progress shown by a program. It would be a mistake and an injustice, however, not to pass comment on the reasonableness of the criteria. employed. Success or failure is ultimately measured against some known criteria. When the criteria is non-existent in the natural environment, it must be created. This is the case in practically all situations concerning measures of reading progress. The great tendency, in the absence of such natural criteria, is to compare program growth to national norms. The selection of what amount of growth will be considered successful is usually rather arbitrary although the convention that has developed is to use a growth factor of .1 (on standardized tests) for each month the program is in operation. The convention is a reasonable one since that amount of growth represents what could be expected of the average student on such a test. The problem is that it needs to be adjusted, and frequently is not, when the past performance of the population under study has not shown them to be average, i.e. they have not exhibited the growth rate previously noted. By definition, 50% of the students in the nation's schools will not do so. That is how the norm originates. It seems a serious error in judgment to take a population of students in need of reading remediation, have them score at average levels as measured by national norms, and label that failure.

In this instance it represents a failure to attain results that are significant beyond the .7. That is a criterion that is reasonable when applied to a normal population of students. Such a population would be expected to make gains of .7 in the natural course of events. A program that seeks to stimulate further growth should indeed be required to show gains that are significantly higher than .7 for such students. In this way, evidence is produced that something which could not normally be expected has happened as a result of the program. The Project Read population is not such a group and similar gains could not be expected. The fact is that in the case of students who have already demonstrated retardation in reading, .7 could well represent progress that is significantly higher than might be normally expected. When growth is not measured against a norm established for a particular group based on its own history, a program is unfairly required to show gains that may be beyond its capacity or be rated a failure.

A similar but reverse injustice would exist if a group of children who had scored at the 75th percentile in reading were also required to achieve gains of .7. A score significantly beyond .7 is not necessarily an indication of success for such a program. In the light of their previous performance such growth would be expected irrespective of the effect of the program. It must be remembered that the population of District 1 had scores that averaged below the 24th form, or the lowest quartile, on the New York State PEP tests. Given this history, the level set for program success is simply not reasonable. The gains, while modest by some standards, are real and represent acceptable levels of progress for over 50% of the students in any population, let alone in a program dedicated to providing remedial aid.

Apart from the entire issue of statistical significance, some additional comments should be made, particularly in reference to comprehension. This is clearly the aspect of reading around which most efforts center. It is the true focus of all reading endeavor since most skills taught have the improvement of comprehension as their ultimate goal. The test results were rather mixed in regard to the upper and lower three grade levels. This may reflect the fact that many of the children in the district are learning English as a Second Language, another factor that should be taken into account when assessing the level of progress attained. The scores of such students would be more likely to improve as they grew older and gained greater command of the language.

These results also support a contention that the Project Coordinator often put forward. She has consistently pointed out that the Project Read program is cumulative in its effect and that the true measure of its progress will be observed only over a period of years. The argument is a plausible one. The Sullivan materials do place much stress on phonic skills and the process by which these skills are transferred and applied to reading comprehension does take time. Any program that concentrates heavily on building a basic foundation of skills will be at a disadvantage if judged in its initial stages. Methods which concentrate on word recognition, for example may have early advantage.

The fact that grades 4-6 did fare better than the lower grades could be viewed as supporting this position. It may well mean that the skills are beginning to take hold resulting in increased progress. Certainly the pattern of results is not in conflict with this premise. The program has been in operation for three years and despite the fact that there is considerable pupil turnover, the results do favor those classes who have had greater exposure.

It is clear that no definite conclusions can be drawn but in the interest of objectivity one other potential factor should be mentioned. The Sullivan materials have been condemned in some quarters as being weak in the area of comprehension. There is little doubt that the workbooks do not provide a great deal in the way of specific help in the area of comprehension. The BRL program does provide sets of readers that are used at predetermined intervals but the major focus is directed toward skill development. The teaching format that is suggested for use by BRL has a similar focus. The result may be an inbalance in the proportion of time students spend reading a variety of literature. Too much time is spent in preparing children to read and too little time devoted to the actual process.

The entire issue of emphasis is worthy of examination and some adjustments may prove necessary. One does not choose to take the extreme position that the way a child learns to read is simply by reading but there is little question that a skill must be practiced in its totality if it is to be improved. It would appear that a broader focus should be sought. A planned effort to greatly augment the comprehension aspects of the BRL materials would seem to provide a productive and perhaps necessary direction, particularly for younger children. The materials provided appear neither adequate nor varied enough to sustain the development of a sound basis for growth in comprehension.

None of the preceding should be construed as suggesting that additional reading materials are not now used. They are present in greater or lesser degree in practically all classrooms. The difficulty is that they are not a formally planned part of the ongoing program. In a tightly structured program where sets of activities are prescribed and the sequence of events thoughtfully determined in advance, other activities must compete for time. They do not always do so successfully. To its credit, the program is well organized. It is for that reason that if additional comprehension activities are necessary, and the evaluator strongly believes they are, those activities must be planned and built into the daily structure of the program and not left to individual discretion or chance.

In summary, despite the lack of statistical significance reasonable levels of growth appear to have been attained. While some of the results in comprehension do give cause for concern, it is clear that progress is being made by the vast majority of children. The gains in eight of twelve isolated instances matched or exceeded that which could be expected of an average population of students over a similar time period. This could be rated a failure only if such gains could have been expected for the pupils involved and the evidence indicates it could not. In addition, the obviously positive attitudes of students and instructors toward the program while difficult to measure, is not without importance. If teachers are correct in their assessment of improved pupil work habits and self-reliance, then other important educational goals were also being met.

RESULTS OF THE QUESTIONNAIRE

A second goal of the Project Read program was to help participating teachers acquire greater functional use of the reading material employed. This would include, among other things, the programmed workbooks which are used to develop phonic skills and the comprehension readers that accompany the workbooks and are designed to reinforce specific skills. As a means of assessing this goal, a questionnaire was developed and administered to teachers on a pre and post basis. The expectation was that there would be significant, measurable growth in regard to teacher use of program material when early and later participation in the program was compared. The questionnaire (see Appendix A) was developed from material provided by BRL personnel and dealt specifically with skills demanded of the instructor either in using materials or conducting the program. The sample included all teachers in the Project Read Program at P.S. 140. Questionnaires were collected in a manner designed to protect the anonymity of the respondent.

The original intent in regard to this program objective was to compare questionnaire results of teachers involved in Project Read classrooms against those who were not. It was felt that participation in the program would result in increased knowledge on the part of Project Read teachers that would manifest itself in significantly different scores on the post test between the two groups. Several factors combined to prevent this type of analysis. To begin with, the number of non-program teachers was rather small since practically all teachers were involved with the exception of those teaching the most advanced class in each of the grade levels from 3-6. Secondly, since the program has been conducted in the building for several years, many of the supposed "non-Project Read" teachers had had extensive experience in the program and would have been thoroughly familiar with the use of materials. Indeed, even at the end of the year, several such teachers would still have had more accumulated experience than a teacher who was new to the program in September. The end result was that this reduced an already small population to a size that made statistical comparison between groups impossible.

An alternative procedure was adopted in which a comparison was made between the pre and post test results of the Project Read teachers. The questionnaire items were couched in terms of teacher self-appraisal in regard to their skill in the use of program materials and techniques. A Likert type scale was employed with a total of 30 items included in the inventory. Answers were weighted in importance from 1-5 with higher scores reflecting a greater appraisal of skill in the use of Sullivan materials. A correlated t test was used to compare pre and post results and the .05 level of significance was used. In Table III, the comparison of scores is presented.

TABLE III

Analysis of the Questionnaire Results

Date	N	Mean	S.D.	t
October	17	102.2	23.6	1.96*
May	19	113.7	23.4	

$^*p < .05$

As is evident, a significant difference was recorded between the October and May results. The scores reflect a significant growth in teacher appraisal of their skill in the use of program materials. Measures such as this are, of course, subject to considerable error and do not necessarily provide data of great value in regard to the operation of the program. If such results are accurate, they would ultimately be reflected in increased reading achievement on the part of the students. The data of consequence is not whether teaching skills are improved but if this improvement can be translated into pupil progress. If it does not, the entire meaning of such growth must be called into question. It is not that the improvement of teaching skills is either unimportant or unworthy of study. Such studies are done and are of enormous importance. The funding of this program, however, is predicated upon providing aid that will stimulate student growth in reading. It would appear that within the confines of such a program, evaluative effort would more profitably be concentrated on this area. It is suggested that in the future, additional measures be abandoned and goals stated in terms of pupil progress.

It is important that such comment not be viewed as an indirect or implied criticism of the recorded growth in teacher skill reflected in the results already reported. As have been mentioned, the general level of teacher ability did appear to be excellent and the program was very capably administered. From the type of attitude, ability and effort observed, there is little reason to believe that such growth would not have occurred.

SUMMARY AND RECOMMENDATIONS

It is evident, that in statistical terms, the program did not achieve one of its major goals. It is equally evident to a close observer that much is being accomplished. Children are attaining levels of growth that are more than acceptable given the remedial intention of the program and the prior history of its population. It must be stressed that 63% of the students in P.S. 140 are below the 4th level, or the lowest quartile, on the New York State PEP tests. 89% are below grade level in reading as measured by MAT results. When one removes the approximately 120 pupils who formed the more advanced reading groups in grades 3-6 and were thus not involved in Project Read, the figures given above must be revised upward. In addition, it should be considered that a significant number of students in the school are learning English as a Second Language. The initial language disability is difficult to overcome and is bound to be reflected in reading achievement. In brief, the previous performance of students has not indicated that average levels of growth in reading have been attained and yet that is what was accomplished this year. It is a mistake to consider such results failure.

In summary, the continuance of the program is recommended based both on the reasonable levels of growth recorded and the potentially beneficial effect upon student attitudes and work habits. Concern must be expressed over the results in the area of comprehension and there is continued reservation about the adequacy of the materials in this regard. It is strongly recommended that appropriate supplemental materials be sought and that a planned program be devised that offers reasonable assurance that such materials will be integrated with the regular Project Read activities.

TEACHING & LEARNING

Appendix A

PROJECT READ TEACHERS QUESTIONNAIRE

As teachers currently involved in the PROJECT READ program, we are asking your cooperation in helping us evaluate its progress. The questions that follow are concerned with your own self-appraisal of your reading program. Using the 1 - 5 scale provided, please rate yourself on the following questions.

	Poor	Fair	Average	Good	Excellent
	Circle one				
	1	2	3	4	5
1. Your skill in the use of the comprehension reader to improve specific reading skills.	1	2	3	4	5
2. Your constructive use of the educational assistant in the Project Read Program.	1	2	3	4	5
3. Your development of phonics through the overall use of materials developed by BRL.	1	2	3	4	5
4. Your use of the Enrichment or Decoding Kit.	1	2	3	4	5
5. Your implementation of suggestions for bringing variety into the administration of the excercises in the workbooks.	1	2	3	4	5
6. Your students' current skill in the use of Sullivan materials.	1	2	3	4	5
7. Your organization and conduct of reading groups in regard to providing fruitful activities for the children in the various groups.	1	2	3	4	5
8. Your students' growth in independent use of reading materials as a result of your instruction.	1	2	3	4	5
9. Your effective use of the Teacher's Enrichment Activities Guide.	1	2	3	4	5
10. Your ability to construct or make use of some of the "game" oriented materials that could be developed with the Sullivan materials.	1	2	3	4	5

PROJECT READ TEACHERS QUESTIONNAIRE (continued)

	Poor	Fair	Average	Good	Excellent
	Circle one				
	1	2	3	4	5
11. Your use of a Project Read bulletin board.	1	2	3	4	5
12. Your current ability to carry out the overall intent of the program.	1	2	3	4	5
How effectively do you feel you have been teaching the following skills?					
13. Initial sounds, final sounds, medial sounds, family sounds.	1	2	3	4	5
14. Identification - listening skills. Writing - sounding out.	1	2	3	4	5
15. Word analysis (Configuration - words that look alike, consonant or vowel cluters).	1	2	3	4	5
16. Picture clues - suggestions as to what the word might be.	1	2	3	4	5
17. Structural clue - prefixes, roots, suffixes, endings, compound words, comparative endings.	1	2	3	4	5
18. Phonetic analysis - sounding of word or parts - syllabication - words into syllables.	1	2	3	4	5
19. Context clues - how the words are used in sentence or paragraph.	1	2	3	4	5
20. Multiple meanings: Synonyms - Antonyms.	1	2	3	4	5
21. Dictionary - may be a combination of various skills.	1	2	3	4	5
22. Reading comprehension.	1	2	3	4	5
How would you rate your current effectiveness in the use of the following suggested activities?					
23. Use of charts - to show how words are composed or to aid in analysis of consonant and basic family sounds.	1	2	3	4	5
24. Use and understanding of words - Acting out words to show meaning - Use of pictures to illustrate meaning - Use of rex sheets where definitions are given or read to child - Placement of words in sentences.	1	2	3	4	5

PROJECT READ TEACHERS QUESTIONNAIRE (continued)

	Poor	Fair	Average	Good	Excellent
			Circle one		
	1	2	3	4	5
25. Placement of words in sentences as a part of understanding that words may have more than one meaning.	1	2	3	4	5
26. Building of words - parts of word are left out at the discretion of teacher. It may be initial sounds, vowel or vowel blend, or the ending. The child may fill in by reference to chart or words, or chalk board, or chart or stencil.	1	2	3	4	5
27. Scrambled words....letters or parts of word in juxtaposition.	1	2	3	4	5
28. Scrambled sentences - words out of order.	1	2	3	4	5
29. Verbalization and experience charts - stories related to words built up by children.	1	2	3	4	5
30. Story writing - teacher may compose a story based upon words in list. Words are left out of story. Children fit in words that fit.	1	2	3	4	5

Function No. 33-3-6456

SUPPORTIVE TRAINING FOR INEXPERIENCED AND NEW TEACHERS

EXECUTIVE SUMMARY

The Supportive Training For Inexperienced and New Teachers (STINT) was a recycling of a State Urban Education program that operated in eight elementary schools and one junior high school in District I in New York City. The district, in a low income area of New York City, has been experiencing turnover and professional developent problems among its new and inexperienced teachers. Many new teachers found it difficult to cope effectively with the teaching problems related to poverty and bi-culturalism.

The program consisted of ten master teachers who were selected from the nine schools. Each supervised eight to ten new teachers.

Program Activities:

a) Demonstrations of teaching lessons by the trainers
b) Consulting with trainees about their teaching, their students and problems they were encountering
c) Parent workshops to familiarize parents with what their children were doing and to enhance parental cooperation
d) In-service education for the trainers to familiarize them with new educational developments
e) Supervising trainees in the preparation of instructional materials.

Program Objectives

The program objectives were:

1. To improve the teaching skills of the participating inexperienced and new teachers to the extent that 75% of the teachers will receive higher ratings on classroom management and preparation of instructional materials at the end of the year.

2. To reduce the turnover among participating new teachers below the turnover rate of new teachers not participating in the STINT program.

3. To increase the academic achievement of students in participating classes over levels achieved in classes with new teachers not served by the STINT program.

Findings and Conclusions

1. The teaching skills of the STINT teachers significantly improved during the school year. The absence of a control group precludes the conclusion that the improvement is attributable to the STINT program alone.

2. The turnover rate among the STINT teachers was very low; less than 7% totally and less than 4% excluding maternity leaves. No comparison group was available because of the scarcity of new teachers in the non-STINT Schools. The present tight job market complicates drawing conclusions from the data

3. Students in the STINT classes improved their math achievement scores, over a period of a year, more significantly than a control group. In reading, there was no difference between the groups. Thus, STINT influence on achievement is not clear especially since the control group included, by necessity, classes with third and fourth year teachers.

4. The STINT program was valued by principals as well as new teachers. It fills a training void and appears to increase feelings of job satisfaction among new teachers.

5. The parent workshops were largely a failure because of inadequate planning and other problems.

Recommendations: (See report for full-recommendations)

1. The STINT program should be continued since it fills an important need in the schools

2. The Program Coordinator should have greater control over the selection of trainers

3. The influence of trainer styles should be studied in future designs

4. Demonstration lessons should be conducted in non-STINT classes.

5. Trainees should observe other superior teachers in the school conducting classes

6. Each trainer should have an individual budget for some material purchases

7. Parent workshops should be eliminated or receive a good deal more program resources and attention

8. The Program Coordinator should serve on, at least, a half time basis.

Supportive Training for Inexperienced and New Teachers

STINT

STINT was a recycling of a State Urban Education program. The general purpose of the program was to provide in-service training to new teachers in District 1 so that they would improve their pedagogical skills in teaching techniques, curriculum planning, classroom management and preparation of materials. It was expected that this on-the-job training would result in increased success experiences for the teachers which, in turn, would mean an improvement in the quality of education for the children in the schools. It was also expected that new teacher turnover, which had been a problem in the district, would be reduced. This greater teacher stability would also contribute to an improved educational experience for the students.

I PROGRAM DESCRIPTION

A. Sites

STINT operated in nine schools in District I; eight were elementary and one was a junior high school. The elementary schools were Public Schools 4, 15, 20, 34, 61, 63, 64, and 97. The junior high was J.H.S. 71.

These schools were selected on the basis of need; they had high proportions of new and inexperienced teachers with a high turnover rate among new and inexperienced teachers.

B. Staffing

The STINT staff was composed of ten teacher trainers and a Project Coordinator. One trainer was selected by the principal in each elementary school and two in the junior high. In turn, each trainer supervised eight to ten new or inexperienced teachers. At the beginning of the school year there were a total of 88 trainees. Of these original 88 trainees, 81 remained at the end of the school year. Of the seven teachers who left, four resigned or were asked to resign and three went on maternity leaves.

C. Materials

The Project Coordinator had assembled a good library in the district office. This consisted of a large variety of textbooks, teaching aids, and other commercially prepared materials. The teacher trainers had no individual budgets. They relied on what their schools possessed and whatever they prepared or obtained on their own.

D. Student Population

All of the schools in District 1 that participated in STINT are located in an area of the Lower East Side of Manhattan that is bounded by 14th Street and Delancey Street on the north and south and the Franklin D. Roosevelt Drive and First Avenue on the east and west. This community consists primarily of high density, four and five floor "walk up" tenaments, some public housing projects and a few middle income apartment houses.

The children who attended the STINT Schools, are poor. They are predominantly of Puerto Rican background. Black and Chinese children make up the two remaining groups of significant size. Less than 10% of the children are white.

The academic achievement of the students in the STINT schools reflect educational disadvantagement in that class means of achievement test results are well below national norms.

E. Teacher Population

The STINT teachers were all first or second year teachers except for three who were in their third year of teaching. The teachers all held either permanent or provisional teaching certificates and all had completed collegiate teacher programs.

F. Program Activities

The in-service training consisted of the following activities:

1. Demonstration lessons

These were conducted, generally, by the teacher trainers in the classes of the trainees. The trainees who were free observed the lesson. One trainer did few demonstrations himself and instead had trainees observe classes being taught by other teachers in the school who were considered to be good teachers or who were outstanding in a particular area or function.

2. Consultations

The trainers conferred with the trainees about problems they, the trainees, were incurring in planning for and teaching their classes. They also conferred on what had transpired in the demonstration lessons and about general considerations in teaching. The proposal had mentioned workshops as another means of accomplishing the training but scheduling problems made workshops unfeasible and very few were held. Trainers, however, did confer. with small groups of two or three trainees at a time.

3. Parent Workshops

Workshops were planned to acquaint parents with what was going on in the classrooms of their children, particularly in the area of reading. It was hoped that increased parental understanding would contribute to improved student achievement.

4. Trainer Education

Demonstrations and discussions of new methods and curricula were held by the Project Coordinator for all the trainers. The trainers also attended montnly meetings at the Coordinator's office where ideas were exchanged as well as administrative matters taken up.

5. Preparation of Teaching Materials

Although not specifically mentioned in the proposal, all of the trainers prepared or helped trainees prepare teaching materials which were usually multigraphed. This emerged as an important, if not specified, activity because the trainers considered material preparation as an absolute necessity in teaching their student population.

II PROGRAM OBJECTIVES

The specific objectives of the program were:

1. To improve the teaching skills of the participating inexperienced and new teachers to the extent that 75% of the teachers will receive higher ratings on classroom management and preparation of instructional materials at the end of the year.

2. To reduce the turnover rate among participating new teachers below turnover rate of new teachers not participating in the STINT program.

3. To increase the academic achievement of students in participating classes over levels acheived in classes with new teachers not served by the STINT program.

III EVALUATION PROCEDURES

Following are the evaluation objectives that were developed with the procedures that were used to test each objective. Each evaluation objective corresponds to its like numbered program objective in section II.

1. Teaching Competency

To assess whether there will be improvement in the teaching skills of the participating inexperienced and new teachers to the extent that 75% of the teachers will receive higher ratings on classroom management and preparation of instructional materials at the end of the year.

A. Sample: The sample consisted of 40% of the teacher trainees. Since the program was designed to train 80 teachers, the sample number was 32. Three teachers were randomly selected in seven of the elementary schools, four teachers in the eigth elementary school, and seven teachers in the junior high school. All of the teachers in the sample were in their first or second year of teaching.

Table I presents the distribution of the sample according to grade.

Table I. Number and Percent of Classes In Sample According To Grade (n=32)

Grade	Number	Percent
1	2	6.3
2	5	15.6
3	5	15.6
4	7	21.9
5	3	9.4
6	0	0.0
7	1	3.1
8	4	12.5
9	1	3.1
ungraded	4	15.5
Total	32	100.0

The sample distribution is bimodal because of the STINT elementary school teachers were assigned to grades 2, 3 and 4 while another 20 STINT teachers were in the Junior High School (grades 7, 8, 9).

B. Instruments

The teachers performance rating scale (see appendix 1) was developed to rate the trainees on their teaching skills. The scale consists of 21 items covering three areas; instructional skills, relationship skills, and classroom management skills. The ratings consist of a Likert like scale ranging from a low of 1 to a high of 5. A total score was obtained by summation.

The rating scale was developed by the evaluation team after interviews with the Project Coordinator to determine the goals of the teacher training program. The 21 skills on the scale reflect the training goals.

Two samples of instructional material were collected from each teacher: one for pre test purposes and one for post test. Each sample also was given a rating on a five point scale.

C. Evaluation Schedule

Pre test ratings were made on the entire sample during the Fall of 1972. The ratings were based on a classroom observation of each teacher. The last test observations were done in May 1973. The samples of the teachers' instructional materials were collected at the same time that the observations were made.

D. Statistical Analysis

Pre-post comparisons of the ratings were made to determine whether 75% of the sample received higher ratings on their teaching behavior and for their preparation of instructional materials by the conclusion of the school year. Additionally, a chi-square analysis was made against the 75% criterion to determine whether observed differences were significant. Significance was set at the .05 level.

2. Teacher Turnover

To assess whether the turnover rate among participating STINT teachers is below that of new and inexperienced teachers not participating in the program.

A. Sample: Here the sample consisted of the entire population of STINT teachers. The control group was to consist of all the first and second year teachers in the non-STINT schools in the district.

B. Statistical Analysis: In order to measure the turnover rate among new teachers, it was planned to collect attrition data for all STINT teachers as well as for the district's new teachers in non-STINT schools. A "t" ratio was to be used to compare the average number of months (0-10) on the job for the STINT and control groups. Significance was set at the .05 level.

In addition, a simple comparison of the turnover rates was to be made at the end of the school year.

The planned statistical analysis for this objective could not be done because of the paucity of first and second year teachers that were reported in the non-STINT schools. Therefore, the turnover rate in the STINT schools alone was described.

3. Student Achievement

To assess whether there will be an increase in academic achievement for the students in participating classes over levels achieved in classes not served by the STINT program.

A. Sample: The sample consisted of: a) the classes of the teachers that comprised the sample in IA, and b) a control sample of classes of new and inexperienced teachers in the districts' non-STINT schools. The variable of grade was controlled for.

The control sample presented a problem in that only five teachers were reported in the districts eight non-STINT elementary schol to have two years or less of experience. Consequently, third and fourth year teachers' classes were used to fill out the control group.

B. Instruments: The Metropolitan Achievement Tests in Reading and Math were used to obtain measurements of the students' academic achievement.

C. Testing Schedule: The MAT tests used were those that were routinely administered throughout the district during April and May of 1973.

D. Statistical Analysis: The original proposal design called for an analysis of covariance to determine if the difference between the STINT and non-STINT group achievement means was significant at the .05 level. The 1972 achievement test scores were to serve as the covariant. Obtaining usable sets of 1972 scores became an unfeasible task since the scores of each student would have to be traced down individually. Consequently, the present analysis consists of a "t" ratio comparing the mean achievement scores of the STINT classes and the non-STINT classes. Significance remained at the .05 level.

IV RESULTS

1. Teacher Competency

The data indicates that 30 of the 32 trainees or 94% improved in their teaching behavior as measured by the Teaching Performance Rating Scale.

Table 2. Number and Percent of STINT Trainees' Changes In Teaching Behavior

Direction of Change	Number	Percent	Chi Square
Improved	30	94	
Regressed	2	6	
Unchanged	0	0	
Total	32	100	6.00**

**Significance at .01 level

This figure well exceeds the 75% criterion that was established. The chi square that was computed against the 75% criterion was significant at the .01 level.

The data in table 2 demonstrates that if the improvement criterion was a post-test score of more than 5 points higher than the pre test score, the 75% figure still would have been met.

The average teacher trainee increased by more than 11 points, their rating on this 21 item, 5 point scale.

Table 2 Summary of Amount of Increase and Decrease of Pre-Post Ratings of Teaching Behavior

Increase or Decrease In Rating	Number	Percent
Decrease	2	6
+ 1 to + 5	5	16
+ 6 to +10	12	38
+11 to +15	3	9
+16 to +20	4	13
over 20	6	19
Mean	11.53	
S D	9.01	

The teacher trainees also met the 75% criterion in the improvement of the preparation of their instructional materials. Of the 32 trainees, 24 or exactly 75% had improved ratings. (See Note 1)

Table 3. Number and Percent of STINT Trainees Changes In Preparation of Instructional Materials

Improvement in Rating	Number	Percent	Chi Square
No Change	8	25	
+1	11	34	
+2	9	28	
+3	4	13	
Total	32	100	0.0

*Significant at 01. level

2. Teacher Turnover

Table 4. Summary of Teacher Trainee Resignations, Leaves, and Discharges in STINT Schools

Reason for Leaving	Number	Percent
Resigned	3	3.4
Maternity Leave	3	3.4
Discharged	0	0.0
Remained	82	93.2
Total	88	99.9

Because of the non-STINT schools in the district, only five reported first or second year teachers, no valid comparisons in turnover rates could be made. Table 4, however, indicates that only three STINT teachers resigned during the year and that none were discharged. Less than one out of ten of the teachers left for any reason, including pregnancy. This turnover rate is a dramatic improvement over turnover rates among new teachers in past years.

This improvement may be to a greater or lesser degree attributable, to the STINT program but such a conclusion can be made only cautiously. The teaching job market has tightened up considerably during the past year which also influences, to some degree, teacher turnover rates.

3. Achievement

Table 5. Comparison of the Mean MAT Reading Scores of the STINT and Non-STINT Groups

Group	N	Mean	S.D.	t
STINT	547	3.85	2.01	
Non STINT	509	3.94	2.36	
Total	1056	3.89	2.18	-0.69 N.S.

Table 6. Comparison of The Mean MAT Math Scores of the STINT and Non STINT Groups

Group	N	Mean	S.D.	t
STINT	204	4.65	1.88	
Non STINT	208	4.05	1.37	
Total	412	4,35	1.67	3.71**

**Significant at the .01 level

In math the STINT students obtained significantly better scores on the achievement test than did the non-STINT students. The performance of the two groups in reading, however, was almost indistinguishable. It appears likely then, that the STINT program influenced student performance in math but not in reading.

Interviews and Observations

The following sections are based on the classroom observations and interviews with the project staff and school administrators.

Teacher Trainers

Generally, the teacher trainers were found to be highly professional and capable. In two instances, principals selected teachers for reasons other than their potential ability as trainers - and in one of these the decision was forced on the principal by seniority rules - but otherwise the trainers had all been judged to be outstanding classroom teachers who would be able to work well with inexperienced teachers.

The styles of the trainers varied widely. Some saw their role as assisting teachers to develop in their, the trainees, own particular styles. These trainers tended to be non-directive, supportive of innovation, and generally assisted teachers in exploring their own teaching styles and ideas. When these teachers demonstrated lessons, their intent was not to serve as models but rather to present alternate methods for the teachers' consideration.

Other trainers attempted to teach their trainees very specific skills and sequences of activities that could be adapted to most lesson plans and content. These trainers relied more on demonstrations and advice giving. That is not to say they were not also encouraging and supportive.

It was outside of the scope of this study to attempt to determine which training style was more effective; however, interviews seemed to indicate that trainees preferred trainers who tended toward less structure.

Training Procedures

The demonstration lesson was used by all trainers at least twice a week. Some trainers did as many as five or six in a week. The demonstration lesson was felt to be of value by most of the trainees but one serious problem arose in connection with them. The demonstration was usually done by the trainer in the class of the trainee. As a rule, the trainer did a better job than the trainee which invited comparisons from the students. This placed the trainee in an awkward position. A few of the trainers recognized the problem and avoided it in one of two ways; they demonstrated with other classes or they arranged for the trainees to observe the classes of other teachers. The latter method had the particular advantage of permitting trainees to be exposed to a variety of models and teaching styles.

Observations and Follow Up

Trainers spent a large part of their time in observing trainees' classes and then discussing the observations with the trainees. There was a good deal of variation in how trainees reacted to this training technique.

Some never overcame their anxiety of being observed. Others resented what they considered to be an intrusion. The majority of trainees, however, became comfortable with the method. This was because the trainers were, by and large, not threatening by nature. Further, because they were not administrators they were not perceived as evaluators by the trainees.

The generally relaxed relationship between most trainers and trainees reflects the interpersonal sensitivity of the trainers. Most learned not to give help until the trainee was receptive. This, of course, precluded some inexperienced teachers from receiving any help to speak of.

Material Preparation

Many trainers believed that preperation of materials was an essential skill for teaching in inner city schools. Consequently, a major activity consisted of working with trainees in preparing instructional materials. In view of the special needs of the students and the unavailability of STINT budgets for each school, preparation of instructional materials was indeed an important function. The improvement in these materials that was noted earlier in this report attests to the success the trainers had in this area.

Parent Workshops

The parent workshops were not a well structured part of the program. In two schools, trainers ran series of planned workshops. The content of these workshops focused on providing parents with information about what their children were learning and the teaching techniques that were used. In the remaining schools the workshops were either non-existent or rarely held. Trainers offered differing reasons for the deficiency; the Parent Teacher Association had used all its energies in traditional school affairs and had had no time to participate in workshops. The project staff had not ever gotten around to structuring the workshops. Parents did not respond favorably and workshop attendance was dismal. There seems to be some merit to all of these reasons. But, beyond these explanations there seemed to be a general resistance to offering the parent workshops because trainers also felt that parents were bored with the "teaching" format of workshops which in turn contributed to the poor attendance.

Administrative Attitudes

In each STINT school, the principal was interviewed. Their opinions of the value of the program ranged from moderately positive to highly enthusiastic. Six of the principals considered it among the three most important programs in their school. The other three principals would not make that statement but did want to see the program continued. All of the administrators agreed that they and their assistants had far too little time to devote to the training function. Although they recognized the great importance of that function, the administrative, community, and crisis intervention aspect of their jobs left little time for supervision. They were delighted to have someone in the school whose sole responsibility was training. Most of the principals also thought that it was advantageous for trainers to be non-administrative personnel because it separated training from evaluation.

Conclusions

1. Teaching behavior and skills of STINT teachers improved but the degree of influence attributable to STINT training and time alone is unknown.
2. In today's job market, the STINT program probably has little influence on teacher turnover rates.
3. The STINT program provides a useful function in the schools. Its effect on achievement in basic skills is not clear but its influence on morale and feelings of security among new teachers is evident.
4. There is a decided void in the training function in the schools and the STINT program fills this void for new teachers in a non-threatening manner.
5. The personalities and training styles of trainers appears to be an important variable that deserves further study.
6. The parent workshop part of the program was, largely, a failure because of inadequate planning and problems beyond the control of the STINT staff.

Recommendations

1. The STINT program should be continued since it fills an important need in the schools.
2. The Program Coordinator should have greater control over the selection of trainers. It might be advisable for the building principal to submit three names to the Coordinator, one of which she could choose. Seniority should not be a dominant factor in selection.
3. The influence of trainer styles should be studied in future designs.
4. Demonstration lessons should be conducted in "neutral" classrooms so that STINT students will not compare their teachers to the master teacher.
5. The trainees should have some opportunity to observe more of the superior teachers in the school in action so that they would be exposed to a variety of teaching styles.
6. Each STINT school should have a modest budget at least, so that each trainer can purchase materials.
7. The parent workshop component of the program should either be eliminated or a good deal more planning and resources should go into it. The workshops need to involve parents more and not be so didactic in nature.
8. The job of Program Coordinator should be, at least, a half time job.

Note 1

Use of Chi-Square in Statistical Analysis

A two step procedure was used in the determination of whether or not objectives were met. Typically, designs required a particular level of growth on attainment. For example, teacher's attendance should indicate at least a five percent improvement. In this case, if the five percent improvement criteria was not met, no further statistical analysis was conducted. If the results were fully compatible with the *a priori* distribution, e.g. five percent improved in attendance and ninety-five percent did not, a chi-square value of zero would result. In cases where results exceeded minimum criteria, (statistically significantly) desired outcomes. Chi-square values are therefore only reported in those cases where results exceeded minimal criteria.

TEACHING & LEARNING

Teacher Performance Rating Scale

key: 0 - not ratable
1 - very poor
2 - less than satisfactory
3 - minimally satisfactory
4 - good
5 - excellent

(Circle applicable number)

Instruction					
a. Makes objectives of lesson clear	1	2	3	4	5
b. Accepts divergent opinions and solutions	1	2	3	4	5
c. Asks questions that stimulate thinking	1	2	3	4	5
d. Encourages class discussion among students	1	2	3	4	5
e. Relates learning to other learnings	1	2	3	4	5
f. Maintains interest (motivation)	1	2	3	4	5
g. Culminates lesson with concept, question, relationship, etc.	1	2	3	4	5
h. Reviews important aspects of lesson including students' contributions	1	2	3	4	5
i. Develops conceptual thinking, reasoning, and problem solving	1	2	3	4	5
j. Develops basic skills	1	2	3	4	5
Relationship with Students					
a. Accepts and relates to students' feelings	1	2	3	4	5
b. Uses respectful manner and language	1	2	3	4	5
c. Praises and encourages students' efforts	1	2	3	4	5
d. Uses punishment judiciously	1	2	3	4	5
e. Relates to students' cultural background	1	2	3	4	5
f. Communicates to students' sense that they can learn	1	2	3	4	5
Classroom Management					
a. Maintains an appealing classroom	1	2	3	4	5
b. Maintains well organized and smooth routines	1	2	3	4	5
c. Modifies routines to take advantage of opportunities	1	2	3	4	5
d. Handles unexpected incidents	1	2	3	4	5
e. Handles disruptive incidents	1	2	3	4	5

Function No. 33-3-6457

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MATHEMATICS LABORATORY

Executive Summary

Mathematics Laboratory Project

1972-73

The Mathematics Laboratory Project has completed its first year of operation. The goal of the program was to identify third, fourth and fifth grade children who were low-achievers in mathematics, and through the use of small group and individualized instruction : a) increase motivation to learn mathematics, b) improve computational skills, c) assist teachers in using new materials and techniques for their own instructional programs. This evaluation was designed to collect and examine data relevant to **these** objectives.

In the course of conducting the evaluation, seven on-site observations were made at the Math Lab Project Center at P. S. 134, Manhattan. Pre and Post test measures were constructed to evaluate objectives A and C. A comparison of pre and post test scores on the New York Inventory of Mathematical Concepts was used to evaluate the outcome of objective B.

A description of the program, chi-square analysis of the pre and post test scores and the reaction of the teachers offered in on-site interviews are contained in the evaluation.

The program's objective of increasing motivation to learn mathematics for 75% of the participants was not met. The objective of increasing computational skills for 80% of the students was met and exceeded for every grade level. Chi-square comparisons show that these changes were significant for the third grade (N = 25). Chi-square comparisons for the fourth (N = 19) and fifth grade (N = 12) pre and post test scores were not significant. A chi-square analysis of test scores for a separate fifth grade group (N = 2) who had used the fifth grade form were meaningless in view of small size, although both children showed improved post-test scores. Taken as a combined group (N = 58) 94.9% of the pupils showed an increase in computational skill which exceeds criterion objective of 80%.

Results of a pre post teacher workshop questionnaire (N = 2) indicate that the objective of assisting teachers in using new materials and techniques was met in the use of two out of four manipulative teaching aids. Chi-square comparisons were meaningless due to the small cell size.

MATHEMATICS LABORATORY - DISTRICT I

I. PROGRAM DESCRIPTION

The Mathematics Laboratory project began its operation in P.S 134, District 1, Manhattan, during the 1972-73 school year. It is housed in a classroom to be used as an instructional center for children and as a mathematics resource center for teachers. The furniture consisted of clusters of tables and chairs which was adequate in size and number for the students using the facility. Bulletin boards contained mathematics vocabulary lists, mathematics postulates, and rules governing the use of materials. Samples of childrens' completed projects and papers were also posted about the room. As the year progressed and more materials arrived, they were displayed on cabinet tops. In addition to the manipulative devices, puzzles and games, a mathematics library was also available for the children.

The Project Coordinator assumed the complete responsibility for the physical plant. She located, identified and ordered all the commercially produced materials necessary to operate the mathematics laboratory. She also searched the existing math programs for appropriate activities, and, when possible created new ones. Besides developing an inventory of equipment and supplies, the Project Coordinator administered a diagnostic mathematics test and math attitude questionnaire to each participant. She then planned individual activities and sequences based on these test results. Her other activities included scheduling, record keeping, and planning teacher and parent workshops. An educational assistant helped her in many of these activities.

Approximately 60 students from grades 3, 4, and 5 participated in this program. These children were selected on the basis of their low achievement scores, homeroom teacher referrals, and diagnostic testing.

The participants were arranged in eight instructional groups which cut across homeroom assignments, and in some cases, grade levels. Each group was scheduled for instruction two or three times weekly. Because of the small size of these groups, the Project Coordinator was able to individualize lessons and activities. The paraprofessional contributed to the individualizing of instruction. Instruction and activities were prescribed which were intended to remediate each child's problem area. Daily records were kept of the children's progress.

Instruction typically centered on basic operations of counting, adding, subtracting, multiplying and dividing. The children frequently engaged in weighing, measuring and graphing activities. They were observed recording data through the use of Unifix blocks and Cuisenaire rods. The children made frequent use of Tangrams, Geoboards and geometric paper constructions. The Project Coordinator frequently constructed her own materials to supplement those which were commercially produced.

In addition to developing concepts and improving computational skills the program was designed to increase the children's motivation to learn mathematics. At the conclusion of the structured activity the children were free to choose and explore any materials of interest to them in the room. All the children completed an attitude questionnaire at the beginning and end of their participation in the project in an attempt to measure any change in their motivation.

A Mathematics Laboratory Workshop for teachers was conducted by the Project Coordinator on March 15, 1973. The purpose of this workshop was to make the teachers in the building aware of the available resources and to help them acquire new techniques in their instructional activites.

A Math Lab. Workshop for Parents was conducted by the Project Coordinator on May 15, 1973. Its purpose was to familiarize parents with the new materials and techniques in mathematics to which their children were being exposed.

Procedures:

Objective 1A of the project was to increase the motivation to learn mathematics for 75% of the pupils participating in the program. As a method of assessing any changes in student motivation, a Math Lab Project - My School Questionnaire (see appendix A) was devised. This instrument was administered by the Project Coordinator to each child when entering the program and again at the completion of the program in June, 1973.

The questionnaire is composed of 16 items relating to attitudes toward the school, arithmetic in general, and the Math Lab in particular. A total of fifty four children responded in this pre/post design. This figure exceeds the forty percent random sample suggested in the Evaluation design specification for it includes every participant who completed the questionnaire. Chi-square comparisons were made to determine if 75% of the participants increased their motivation to learn mathematics.

Objective 1B of the project was to increase the computational skills of 80% of the pupils who attended at least 75% of the available laboratory sessions. The New York Inventory of Mathematical Concepts (see appendix B, C, D, and E for grades 2, 3, 4, and 5 respectively) was administered by the project coordinator to each child who entered the program. Children in the Third Grade (N=25) were given the Grade 2 form, Fourth Grade (N=19) were given the Grade 3 form, and the Fifth Graders (N=12) were given the Grade 4 forms. Two fifth grade children were given the Grade 5 form.

This inventory was used to provide an individual analysis of skills and concepts requiring further development. A post test of the same form was given to each child in June 1973. A chi-square analysis was used to determine if 80% of the students who attended 75% of the sessions showed an increase in computational skills between their pre and post test scores.

Objective 1C of the project was to assist teachers in developing new techniques and materials to the extent that 50% of the participating teachers would use new techniques and materials in their instructional activities.

During the time the Math Lab was in operation, one workshop was conducted for teachers in the building. Four teachers availed themselves of the opportunity to participate. Only one of these teachers had students participating in the project. A Math Lab Workshop Inventory (see appendix) listing four teaching materials was developed. The participants were asked on a pre/post test basis, using a 3-point scale, to report the extent to which they used each item.

Four teachers completed the pre-test inventory, and two completed the post test inventory. By the end of the school year, only three teachers were available in the building. The project evaluator interviewed two of these teachers in June, 1973.

Six classroom teachers whose children attended the Math Lab project volunteered their perceptions and evaluations of the program.

No attempt was made to evaluate the parent workshop which was designed primarily for the dissemination of information.

Results:

A comparison of the pre-post test results of the Math Lab Project - My School Questionnaire (Objective 1A)

TABLE I. Motivation to Learn Mathematics as Measured by Math Lab Project - My School Questionnaire

	Increased	Not Increased	χ^2
#	25	29	22.99*
%	46	54	

χ^2.05=3.84

Table I shows an increase in motivation to learn mathematics for 46% of the children. Thus, the goal to increase in motivation to learn mathematics among 75% of the participants has not been met. Chi-Square comparisons reveal that 46% is significantly less ($\chi^2 = 22.99$) than the 75% goal specified in the project design. The reasons for these results are not clear. It is difficult to measure motivation to learn mathematics and the problem may be with the instrument used. Further, while the children may have participated for the full time the Mathematics Laboratory was functioning, five months may not be a long enough period to effect change in motivation.

Six classroom teachers whose children participated in the project volunteered written comments about the Mathematics Lab as it affected them and their children. While not a part of the Evaluation Design, some of their comments are included here. Three teachers specifically mentioned the children's increased positive attitude toward mathematics. One teacher wrote: "It helped the children gain confidence in themselves. It seemed to wipe away the blocks they have toward Math." Another wrote: "I have noticed that the Math Lab Children show more of an interest in math lately". There were no negative views expressed in terms of the projects helpfulness to the children.

Pre and post test scores for each grade appear in Table 2.

TABLE 2: Comparisons of Pre/Post Test Results (Total Scores) on the New York Inventory of Math Concepts by Grade Level.*

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* Grade level refers to test instrument. Except for the two Grade 5 scores which were administered to fifth grade children, all children were tested at levels one year below their grade placement.

	Grade 2		Grade 3		Grade 4		Grade 5		Total	
	Impr.	Not Imp.	Imp.	Not Im.	Imp.	Not Imp.	Imp.	Not Imp.	Imp.	Not Imp.
#	25	0	17	2	11	1	2	0	55	3
%	100	0	89	11	92	8	100	0	94.9	5.3
X^2	7.06**		0.99		1.58		2.50		8.55**	
	N = 25		N = 19		N = 12		N = 2		N = 58	

**X^2 (.05) = 3.84

Test results show that the criterion objective of 80% of the pupils increasing in computational skills has been met at every grade level. X^2 comparisons of the results are significant for the third grade children who were tested with the second grade test forms. While 80% of the fourth grade children showed an increase in computational skills, a X^2 analysis suggests the change is not significant. 92% of the Fifth graders tested with the fourth grade test showed increased computational skill, but again X^2 comparisons of the test results were not significant. The two fifth grade children who had been given fifth grade test forms also increased in computational skills at a percentage (100%) which exceeds the 80% objective of the project. However, the X^2 results show the change to be not significant. In this case, it is due to the small sample size (N = 2). Of the total 58 project participants, 94.9% showed an increase in computational skill, X^2 comparisons show this change to be significant. (See Note 1)

In order to evaluate whether 50% of the participating teachers used new techniques and materials in their instructional programs (Objective C) an analysis was made of the pre/post workshop questionnaire (Tables 3 & 4). It should be noted that the four materials were those discussed in the workshop.

TABLE 3. Pre Teacher-Workshop Questionnaire Recapitulation of Materials Used. (N = 4)

Materials	Never	Seldom	Frequently
Math Balance	3	1	0
Unifix cubes	4	0	0
24 dot circle plotting mult. tbl.	4	0	0
Addition (paper) computer	4	0	0

The post-teacher workshop questionnaire shows little use was made of the four new materials presented to the teachers.

TABLE 4: Post Teacher-Workshop Questionnaire Recapitulation on Materials Used. (N=2)

Materials	Never	Seldom	Frequently
Math Balance	1	0	1
Unifix Cubes	1	0	1
24 Dot Circle Plotting Mult. Tbl.	2	0	0
Addition (paper) Computer	2	0	0

A X^2 analysis of these results would be meaningless due to the small number of completed pre-post workshop questionnaires. One teacher who responded on the post workshop questionnaire commented that she would use the first two items on the materials list if they were available. A third teacher re-labeled the columns to indicate that she would use the Math Balance (item 1) and Unifix Cubes (item 2) if she had the materials and that she planned to use the 24 dot Circle Plotting Multiplication Table (item 3) and the paper **Additional** Computer (item 4). Such declarations of intention were irrelevant to the evaluation design and could not properly be included in Table 4.

Interviews with two teachers who attended the workshop indicated it had very limited value for them. In one case the feeling was expressed that such techniques and materials were not consistent with the teachers own approach to teaching.

Based on the results of the pre-post teachers workshop questionnaires and the teacher interviews, it is apparent that 50% of the participating teachers did not make use of new techniques and materials in their instructional program. While this objective (1C) was not met, some positive written comments were volunteered by six building teachers whose children participated in the program. One teacher wrote " the Math Lab was helpful to me in teaching multiplication. The Math Lab Teacher provided me with a systematic and organized way of teaching multiplication." Another found "the Math Lab has been refreshing and stimulating as a resource for new materials". These comments are included as a point of interest but are not properly part of the evaluation design of the project.

It is difficult to measure this project objective with so few participants. The low level of attendance may be due in part to a lack of publicity about the workshop or that many teachers are unwilling to give up part of their lunch hour to attend this kind of activity.

Summary and Recommendations:

The Mathematics Laboratory Project began its operation in P. S. 134, District 1, Manhattan, during the 1972-73 school year. This project was designed with three major objectives:

1. To increase the motivation to learn mathematics for 75% of the pupils participating in the program.

2. To increase the computational skills of 80% of the pupils who attend at least 75% of the available laboratory sessions.

3. To assist teachers in developing new techniques and materials to the extent that 50% of these participating will use new techniques and materials in their instructional programs.

58 pupils from grades 3, 4, and 5 were selected to participate on the basis of low achievement scores, teacher referral, past records and diagnostic testing. The Project Coordinator diagnosed each child's specific weakness in mathematics and attempted to prescribe appropriate activities to remediate the problem. Children attended the laboratory 2 or 3 times per week, depending on need. Instruction was individualized or given in small groups. Math Lab lessons typically included manipulative materials, puzzles and games. Children were usually allowed some free time to pursue activities of personal interest. A math library was also available to the children. An educational assistant helped the Project Coordinator in the areas of record-keeping and instruction.

During the year the Project Coordinator conducted a workshop for teachers in an attempt to familiarize them with new instructional materials and techniques.

Another workshop was conducted for parents of children in the district. The purpose of this workshop was to help disseminate information and provide feedback about the program.

The Project Coordinator also assumed responsibility for identifying and ordering all the necessary equipment and supplies to establish and conduct the Mathematics Laboratory.

Students were pre and post tested on their motivation to learn mathematics (Objective 1) using a Math Lab Project - My School Questionnaire, designed specifically for this program. Chi-square comparisons showed that the 75% criterion was not met.

The New York Inventory of Mathematical Concepts was used to diagnose concepts and skills which needed further development. Children were given test forms one year below actual grade placement. This same instrument was used as a pre and post test measure to assess the second objective of the program - to increase the computational skills of 80% of the pupils who attended 75% of the available laboratory sessions. Test results for the Third Grade (N = 25), Fourth Grade (N = 19) and Fifth Grade (N = 12) show that computational skills have increased for more than 80% at every grade level. A second fifth grade group (N = 2) who had taken fifth grade level tests also met the 80% criterion. A Chi-square analysis of the test results for each group indicates significant improvement for the third grade children. X^2 results for two fifth grade children who had taken fifth grade tests were meaningless due to the small size of the group. Chi-square comparisons of the fourth and fifth grade scores were not significant.

The third objective of getting 50% of the participating teachers to use new techniques and materials in their instructional programs was not met. Attendance at the workshop for teachers was low (N = 4) and only two completed a pre and post workshop questionnaire, assessing frequency of use of four teaching aids. One of the two teachers used two of the aids more frequently after taking the workshop which yielded a 50% improvement for those two teaching aids. However, in view of the small numbers, a chi-square analysis was meaningless.

It is recommended that this project be refunded. The Mathematics Laboratory did not begin functioning until January 1973. Some materials and supplies still did not arrive by June 1973, although the quantity and variety of equipment currently available makes it functional. In spite of a delayed start, the results seem most promising. The Coordinator's previous experience was not closely related to teaching mathematics and she has indicated that much time was expended in her own training. This training and the current year of experience suggest a more efficient operation if the program were to be continued.

Identifying and scheduling of participants should begin in September. The Project Coordinator should be given more administrative assistance in arranging schedules. Such assistance should come from within the building which houses the project.

Children should be permitted more free time to explore mathematics materials of interest to them. The concern for improvement in computational skills may not be consistent with the goal of increasing motivation to learn mathematics. Periods of self-discovery using inherently interesting equipment and materials may be more effective in changing attitudes toward mathematics than teacher directed lessons and activities.

The Project Coordinator should be relieved of the responsibility of scheduling teacher workshops. If possible, the building principal should arrange a schedule of teacher workshops. Teachers whose children participate in the program should be encouraged to attend such workshops. At the very least, some attempt should be made to coordinate the activities of the classroom teacher and the Project Coordinator.

A master list of activities and materials should be developed by the Project Coordinator and distributed to teachers in the building. This might encourage the use of the Math Lab as a resource center. It would also allow classroom teachers to suggest activities they feel would be appropriate for their children, thus helping in the individualizing of the program. Teachers could also contribute to the identification of specific problems their children exhibit in math, including motivation and attitude.

Finally, the number of children who can be effectively served is less than the 200 figure cited in the proposal. It is recommended that that number be revised to approximately 75 given the current level of space and staff allowed.

Note 1

Use of Chi-Square in Statistical Analysis

A two step procedure was used in the determination of whether or not objectives were met. Typically, designs required a particular level of growth on attainment. For example, teacher's attendance should indicate at least a five percent improvement. In this case, if the five percent improvement criteria was not met, no further statistical analysis was conducted. If the results were fully compatible with the *a priori* distribution, e.g. five percent improved in attendance and ninety-five percent did not, a chi-square value of zero would result. In cases where results exceeded minimum criteria, a chi-square test (1-tailed) would reveal whether the program exceeded (statistically significantly) desired outcomes. Chi-square values are therefore only reported in those cases where results exceeded minimal criteria.

TEACHING & LEARNING

MATH LAB PROJECT

MY SCHOOL QUESTIONNAIRE

Name ______________________________ CLass ________________

School ______________________________

Circle the answer that tells how you feel.

1. The teachers in this school want to help you. YES SOMETIMES NO
2. The teachers in this school expect you to work too hard in arithmetic. YES SOMETIMES NO
3. The teachers in this school are really interested in you. YES SOMETIMES NO
4. The teachers in this school know how to explain things clearly. YES SOMETIMES NO
5. Arithmetic is easier to learn when you are in a small class. YES SOMETIMES NO
6. The boys and girls in this school like to learn arithmetic. YES SOMETIMES NO
7. This school building is a pleasant place. YES SOMETIMES NO
8. I would like to learn more arithmetic. YES SOMETIMES NO
9. The work at this school is too hard. YES SOMETIMES NO
10. What I am learning will be useful to me. YES SOMETIMES NO
11. Arithmetic tests scare me. YES SOMETIMES NO
12. It is easier to learn arithmetic in the Math Lab. YES SOMETIMES NO
13. This is the best school I know. YES SOMETIMES NO
14. Number work at this school is too easy. YES SOMETIMES NO
15. I work hard in school but don't seem to get anywhere. YES SOMETIMES NO
16. I've learned more arithmetic this year than any earlier year. YES SOMETIMES NO

END